A Review of 2000 / 2001 British Columbia Herring Fisheries

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by

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TABLE OF CONTENTS

ABSTRACT iv
RÉSUMÉ iv
LIST OF TABLES v
LIST OF FIGURES vi
1.0 INTRODUCTION 1
2.0. STOCK ASSESSMENT 1
2.1. RECOMMENDED YIELD FOR 2001 2
3.0. MANAGEMENT PLANNING PROCESS 3
4.0. ALLOCATIONS 4
5.0. SUMMARY OF FISHERIES 4
5.1. FOOD SOCIAL AND CEREMONIAL (FSC) Fishery 4
5.1.1. Queen Charlotte Islands 4
5.1.2. Prince Rupert District 4
5.1.3. Central Coast 5
5.1.4. Strait of Georgia 5
5.1.5. West Coast of Vancouver Island 5
5.2. ROE FISHERY 6
5.2.1. Queen Charlotte Islands 7
5.2.2. Prince Rupert District 7
5.2.3. Central Coast 8
5.2.4. Strait of Georgia 9
5.2.5. West Coast of Vancouver Island 11
5.3. SPAWN ON KELP FISHERY 11
5.4. WINTER FOOD AND BAIT FISHERY 13
5.4.1. Strait of Georgia 14
5.4.2. Johnstone Strait 14
5.5. SPECIAL USE FISHERY 14
5.6. HERRING CONSERVATION AND RESEARCH SOCIETY 15
5.7. TEST FISHERY 16
5.7.1. 2001 Test Fishing Program 16
REFERENCES 18

ABSTRACT

Hamer, L., and Hepples, J. 2001. A review of 2000 / 2001 British Columbia herring fisheries. Can. Ind. Rep. Fish. Aquat. Sci. 263: vi + 51 p

The Pelagic Subcommittee of PSARC recommended a biological yield of 31,416 tons for five major British Columbia herring stock assessment regions in 2001. Whole herring and / or herring spawn was harvested in the following fisheries: food, social and ceremonial; roe; spawn on kelp; winter food and bait; commercial, sport, personal use bait; charity sales; zoo and aquarium food; test fishing; and research. The 2001 coast wide roe herring quota was 23,876 tons, and 24,752 tons were caught.

RÉSUMÉ

Hamer, L., and Hepples, J. 2001. A review of 2000 / 2001 British Columbia herring fisheries. Can. Ind. Rep. Fish. Aquat. Sci. 263: vi + 51 p

Le sous-comité pour la pêche pélagique du Comité d'examen des évaluations scientifiques du Pacifique (PSARC) a recommandé d'établir à 31,416 tonnes la productivité de cinq grandes régions de pêche au hareng de la Colombie-Britannique en 2000. Des harengs et/ou des oeufs de harengs ont été récoltés dans les secteurs de pêche suivants : pêche autochtone à buts alimentaire, social et cérémoniel; pêche des oeufs de hareng; pêche des oeufs de hareng sur varech; pêche minotière et pour les appâts; pêche commerciale, pêche sportive, pêche pour appâts à usage personnel; ventes à but caritatif; alimentation des animaux captifs (zoos et aquariums); pêche exploratoire et recherche. Le quota pancôtier de pêche au hareng rogué pour 2001 était de 23,876 tonnes, et 24,752 tonnes ont été capturées.

LIST OF TABLES

Table 1. 2001 Forecast biomass and recommended yield (tons) by region. 19
Table 2. Herring Working Group 2000/2001 expected use allocations (tons) by fishery and region. 20
Table 3. Final fishery notice of the 2001 roe herring fishing season. 21
Table 4. 2001 Roe quotas and validated landed catch (tons) by gear type and region. 22
Table 5. 2001 Spawn summary by location and statistical area. 23
Table 6. 2001 SOK Licences and landed product weight (lbs.) by statistical area and location. 38
Table 7. Catch (tons) for food and bait, ZX and ZY, charity, and aquarium use by statistical area 39
Table 8. 2001 Test fishing vessels by category. 40
Table 9. 2001 Test fishing vessels, dates of operations, and payment requirements (tons) 41
Table 10. 2001 Test fish payment requirements by region, and catch (tons) by location 43

LIST OF FIGURES

Figure 1. Herring stock assessment regions in British Columbia 45
Figure 2A. Area 3 subareas open for 2001 Prince Rupert gillnet fishery 47
Figure 2B. Area 4 subareas open for 2001 Prince Rupert gillnet fishery 47
Figure 3. Subareas open for 2001 Kitkatla seine fishery 49
Figure 4. Subareas open for 2001 Central Coast gillnet fishery 49
Figure 5. Subareas open for 2001 Central Coast seine fishery 51
Figure 6. Subareas open for 2001 St. of Georgia fisheries 51

1.0 INTRODUCTION

Herring have been one of the most important components of British Columbia commercial fisheries over the past century, with catch records dating from 1877. The fishery has evolved from a dry salted product in the early 1900's, to a reduction fishery in the 1930's, to the current roe fishery that began in 1972. In addition to the roe fishery, whole herring and / or herring spawn was harvested in the following fisheries: food, social and ceremonial; spawn on kelp; winter food and bait; commercial, sport, and personal use bait; charity sales; zoo and aquarium food; test fishing; and research.

In this report, we briefly summarise stock assessment results and forecasts, and document allocations to all 2000 / 2001 herring fisheries. Management structures of the various herring fisheries are described, and catch information is presented. Sections detailing the dates and locations for roe herring fisheries, winter food and bait fisheries, and test fisheries are also included. Additionally, the 2001 spawn report, including dates, lengths, and widths of spawnings by location and statistical area is tabled.

2.0. STOCK ASSESSMENT

Planning for herring fisheries traditionally begins in the summer with a review of herring stock assessment information by the Pelagics Subcommittee of the Pacific Scientific Advice Review Committee (PSARC). The Pelagics Subcommittee is made up of herring research staff from the stock assessment division at the Pacific Biological Station, and herring fishery managers from the resource management branch. Four First Nations representatives[1] and three industry representatives also participated in the stock assessment process, which took place August 28 to 31 of 2000. At this meeting, an assessment of the 2000 herring abundance was made, and abundance for 2001 was forecast for the five major stock assessment regions (Figure 1).

Herring stock assessments in 2000 were made using two versions of the age-structured model: the age-structured model (ASM) (Haist et al. 1985), and the revised age-structured model (RASM); as well as the escapement model (EM) (Schweigert and Stocker 1988). Both models utilised the available 51-year time series of catch, spawn, weight-at-age, and age-structure information. The estimated spawning escapement in each assessment region was used to forecast abundance for the next fishing season by applying average growth and survival rates to determine the biomass of returning adults. Forecast biomass is calculated as the total of repeat spawners, plus new "recruits" (i.e. first time spawners). An estimate of the average of the third poorest, middle third, and third best of the historically observed recruitment is added to the estimate of returning adults to generate three alternative stock forecasts for the coming year from each assessment model. In general, the average recruitment forecast is adopted for the coming season unless ancillary information is available to indicate that recruitment will be better or poorer than average. Results from both assessment models are reviewed to develop a consensus on which model forecast is most likely in each area.

The five major British Columbia herring stock assessment regions are currently managed by a fixed harvest rate strategy in conjunction with fishing thresholds, or "Cut-off" levels for each region. Recommended yields are set at 20 percent of the forecast biomass for each of the major assessment regions, provided that the recommended

[1] Representatives from three additional bands were invited, but declined to participate.

yield does not reduce the biomass below the Cut-off. The 20 percent harvest rate is considered to represent a conservative level of removals given the biological productivity of the major herring stocks (Schweigert and Ware, 1995). Cut-off levels are set at 25 percent of the estimated unfished average biomass, as determined by simulation analyses. As the forecast abundance approaches the Cut-off, the recommended yield is the difference between the forecast abundance, and the Cut-off. When the forecast falls below the Cut-off, a decision may be made to close the region to commercial fishing.

2.1. RECOMMENDED YIELD FOR 2001

The forecast biomass for 2001 for the five major stock assessment regions totalled 165,770 tonnes, or 182,730 tons[2] (Schweigert, 2000). The Pelagic Subcommittee of PSARC reviewed the forecast, and recommended a biological yield of 31,416 tons for 2001 (PSARC, 2000); (http://www.pac.dfompo.gc.ca/sci/psarc/proceedings.htm). This represents a 26 percent decrease from the total recommended yield of 42,508 tons in 2000.

The EM forecast of 2001 biomass was used in all areas. The recruitment assumption, corresponding 2001 pre-fishery biomass forecast, and the recommended yields for each of the major stock regions are summarised in Table 1

In the Queen Charlotte Islands, an average recruitment option was adopted for 2001. The pre-fishery biomass forecast was 9,590 tons, assuming average recruitment. The forecasted returning biomass was below the Cut-off of 11,795 tons. Applying the decision rule resulted in zero harvest.

An average recruitment option was adopted in the Prince Rupert District. The pre-fishery biomass forecast for 2001 was 25,520 tons, resulting in a potential harvest of 5,104 tons.

An average recruitment option was also used in the Central Coast, resulting in a pre-fishery biomass forecast of 40,520 tons. Application of the 20 percent harvest rate resulted in a recommended yield of 8,102 tons.

In the St. of Georgia, the 2001 forecast pre-fishery biomass, assuming average recruitment, was 91,060 tons, which allowed for a potential harvest of 18,210 tons.

In the West Coast of Vancouver Island, the recruiting 1998 year-class was forecast to be poor. This resulted in a forecast pre-fishery biomass of 16,040 tons, which was below the Cut-off level of 20,723 tons. Application of the harvest rule to the forecast resulted in a recommendation for no roe fishery harvest.

The Subcommittee recommended a yield of 137 tons for Area 27, calculated as 10 percent of the assessed 2000 abundance. There was no potential harvest identified for Area 2W in 2001.

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[2] Traditionally, all estimates and forecasts listed in PSARC documents are in metric tonnes. "Short tons" (i.e. 2000 pound tons) are the measurement unit of choice for the Herring Technical Working Group, Herring Industry Advisory board, and Industry in general. For the sake of consistency throughout this document, all weights given will be in tons.

3.0. MANAGEMENT PLANNING PROCESS

Operational planning for the 2001 herring roe fishery and other herring fisheries began in September with local area meetings held in Port Alberni, Courtenay, Prince Rupert, Queen Charlotte City and an additional October meeting in Bella Bella. At the meetings, current herring stock status information and yield recommendations for 2001 were presented. Attendees were provided the opportunity to comment and advise on any issue pertaining to herring resource management in their local area. Stakeholder comments and advice obtained from these meetings were carried forward to regional advisory sessions, including the Herring Technical Working Group (HTWG) and the Herring Industry Advisory Board (HIAB) meetings, held in late September and early October.

The HTWG is made up of departmental staff augmented by a limited number of First Nations and commercial fishing industry representatives, and a representative from the BC Ministry of Fisheries. At the September meeting of the HTWG, the expected herring utilisation for all non-roe herring fisheries was accounted for in an "expected use table" (Table 2). The remaining herring total allowable catch (TAC) in each of the five stock regions was then allocated to the roe fishery. The resulting roe fishery catch allocations were used in the development of a series of preliminary coastwide harvest options. In developing roe fishery options, consideration was given to advice provided by First Nations and other members of the public in prior advisory sessions. The committee also prepared recommendations for roe fishery management strategies and reviewed plans for the herring test fishery program.

All recommended management options and strategies were carried forward to subsequent meetings of the HIAB. This committee is made up of participants from twelve organisations representing all sectors of the herring fishing industry. Representatives of coastal First Nations also participated in the 2000 HIAB meetings. HIAB was tasked with developing a recommended coast-wide roe fishery option, and, to advise the Department of Fisheries and Oceans (DFO) on specific fishery management issues. There were two HIAB meetings held in the fall of 2000. The first meeting in late September was primarily an information session in which stock status information, roe options, and management recommendations from the HTWG were presented. Stakeholder participants were then provided a period of several weeks to consult with their constituents before reconvening in a meeting held in the latter part of October. At the final HIAB meeting, fishing industry and First Nation representatives shared their perspectives regarding a potential roe fishery plan for 2001. Fishing industry representatives then developed a recommended coast wide roe fishery option for 2001 which was an attempt to accommodate both the commercial fishing industry and First Nation perspectives in each stock region.

Following the HIAB meetings, a draft roe herring integrated fisheries management plan was distributed to interested stakeholders and all First Nations (FN) for review and comment. The management plan was finalised and carried through a regional and national review process, for approval by the Minister of Fisheries and Oceans.

A final HIAB meeting was held in late April of 2001 to carry out a post-season review of the 2000 / 2001 herring fisheries.

4.0. EXPECTED USE

Expected herring use in all 2001 herring fisheries is recorded in Table 2. Expected use assignments for food, social and ceremonial allocations are made first; expected use for other commercial fisheries and test fisheries are made next; and roe fishery assignments are made after all other allocations are completed. The HTWG recommended, and HIAB approved, an allocation of 23,876 tons to the 2001 roe fishery. Allotments to other fisheries were as follows: food, social, and ceremonial fisheries – 1,535 tons; spawn on kelp – 1,975 tons[3] (includes 375 tons from minor areas); commercial communal fishery - 510 tons; winter food and bait fishery (including sport, commercial, and personal use bait, as well as Walcan and Fjord permits) –1,575 tons; charity sales - 150 tons; zoo and aquarium food - 110 tons; and Herring Conservation & Research Society (HCRS) for test fishing and research – 2,360 tons. Each fishery is conducted so that the sum of catches for each area does not exceed the total allowable catch for that area.

5.0. SUMMARY OF FISHERIES

5.1. FOOD SOCIAL AND CEREMONIAL (FSC) FISHERY

A total of 1,535 tons was entered on the expected use table for food, social, and ceremonial fisheries. This is broken down into stock assessment regions as follows: Queen Charlotte Islands – 150 tons; Prince Rupert District – 600 tons; Central Coast – 600 tons; St. of Georgia – 35 tons; west coast of Vancouver Island – 150 tons.

5.1.1. Queen Charlotte Islands

Monitoring of the First nations (FN) spawn-on-kelp (k'aaw) fishery was to be conducted primarily by the Haida Fisheries Program (HFP). Fishers were requested to register with HFP and were to be monitored by aboriginal guardians as to fishing effort and harvest. DFO management personnel conducting stock assessments and Conservation & Protection personnel conducting enforcement activities were also tasked with monitoring the FN spawn-on-kelp fishery during the 2001 season.

Haida food harvesters were present in Jedway Bay and Haswell Bay throughout the last half of March, working in conjunction with the harvest objectives of the Skidegate Band licence J37. Most product harvested went to the commercial interests of the licence, but a significant amount of product was also taken as food. In addition, food harvesters were present in Selwyn Inlet during late April. Due to the unique pole raising event scheduled for June 4 to ninth in the Skidegate Village extra effort was extended to ensure adequate spawn on kelp would be available for the various events planned over the week. The Haida Fisheries Program did not provide DFO with any harvest numbers. However, DFO managers estimate the amount of product harvested in 2001 to be approximately 15,000 pounds.

5.1.2. Prince Rupert District

DFO currently has no agreement with the Tsimshian Tribal Council, and has not received any catch information. It is known that there was some product harvested in the area of North Porcher Island, and there were trimmings available from spawn on kelp

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[3] Spawn on kelp allocation does not include expected use in Queen Charlotte Islands or on west coast of Vancouver Island

ponds. In Kitkatla, approximately 4,300 pounds of spawn on boughs and trimmings were used for food. No additional information is available at time of publication.

5.1.3. Central Coast

The Kitasoo FSC records indicate that approximately 20,000 pounds of spawn on branches and spawn on kelp was harvested. An additional 14,000 pounds of trimmings from commercial spawn on kelp operators were utilised for food. The Heltsiuk did not have their FSC numbers compiled at time of publication (August 2001). DFO information is very limited, but it is known that approximately 8,000 pounds of spawn on kelp were harvested for FSC.

5.1.4. Strait of Georgia

This fishery proceeded with mixed results in the 2001 season. A number of meetings were conducted to establish fishing plans for interested FN, with the South Coast Intertribal Fisheries (SCIF) being the main contact for these meetings.

As a result of these meetings with SCIF, two groups expressed an interest to fish for food herring in the round. A final planning meeting was conducted on February 16, 2001 at the Nanaimo Band Office. In this meeting some of the interested FN decided they would form independent pools and work outside the SCIF process, while others would work with the SCIF to obtain their food fish. The breakdown was as follows:

SCIF PARTICIPANTS	INDEPENDENTS
Nanaimo	Cowichan
Nanoose	Chemainus
Musqueam	Halalt
T'Sou-ke	Lyackson
Songhees	Sechelt
	Penelakut

The independent group arranged a pool among themselves and chartered a gillnet vessel to harvest the herring for them. The herring was harvested and delivered to Deep Bay where the pool members loaded their respective allotments in totes and delivered them to the communities. A total of approximately 6.5 tons of whole herring and 4.7 tons of spawn on boughs was taken from the St. of Georgia for FSC purposes.

The SCIF participants did not start actively pursuing fish until March 23, 2001. This group searched from Parksville to Victoria, but was unable to find a body of herring to fish, and consequently did not harvest any whole herring. The SCIF group also did not harvest any spawn on boughs.

5.1.5. West Coast of Vancouver Island

Barkley Sound: Whole herring were provided to First Nations by both test vessels that operated in Area 23. It is believed that no spawn on boughs were collected in west Barkley Sound. Tseshaht and Hupacasath did get some spawn on boughs from a small, but intensive spawn in Vernon Bay. As there was no commercial spawn on kelp operation in Area 23 this year, there was no opportunity to obtain trimmings.

Clayquot Sound: Ahousaht obtained herring from a set made by their spawn on kelp vessel in Millar Channel and Hesquiaht obtained some herring by gillnet in Hesquiat

Harbour. Ahousaht collected a considerable quantity of spawn on boughs from Young Bay / Bottleneck Cove (quantity unknown), while Hesquiaht got a small quantity out of a short-duration spawn in Hot Springs Cove. Ahousaht probably obtained trimmings from their spawn on kelp vessel in Young Bay, and they received two totes of excess trimmed commercial product. Toquaht may also have received some trimmings. The commercial operation left approximately 5,000 lb. of spawn on kelp in the water that could have been taken for food, but was not.

Nootka / Esperanza: Some herring was provided by test boats and some was saved from one of the spawn on kelp vessels. Spawn on kelp trimmings were obtained from the commercial operation as well as 2.75 totes of excess commercially harvested product.

Kyuquot: There was a small spawn reported and no information suggesting that any herring were harvested in Area 26 this year. Kyuquot did obtain some trimmings from the commercial operation in Esperanza.

Quatsino: There were no reports of any herring fishing activity by the Quatsino Band this year. The commercial spawn on kelp operators in Winter Harbour did not meet their combined quota and they did not trim their product. Therefore, there were no trimmings or leftovers available to the band.

Final tallies made from the information available indicate that 10,750 pounds of whole herring, 1,050 pounds of spawn on boughs, and 7,700 pounds of spawn on kelp were utilised for FSC on the West Coast of Vancouver Island.[4]

5.2. ROE FISHERY

The commercial roe herring fisheries traditionally occur in some or all of five geographic areas that correspond to the major stock assessment regions (Figure 1). Within each of these areas, the usual practise has been to schedule different fisheries for gillnets and seines, so the entire quota for any of the five areas is rarely taken from a single site. The location and timing of fisheries within these sites is based on operational considerations, including the suitability of the fish (i.e. size and roe maturity), and accessibility to the fleet. Fishing generally takes place in late February to early March in southern BC, and mid-March to mid-April in northern BC. Opening dates and times for the commercial fishery are announced on the fishing grounds as the roe matures to optimum quality. Specific fishing locations are determined by major concentrations of fish and the potential for the highest roe yield.

A limited entry personal herring seine (HS) or a herring gillnet (HG) license is required to participate in the roe herring fishery. At this time, there are 252 seine licenses and 1256 gillnet licenses. In the past, roe herring fisheries were characterised by high catching power. To practise more risk averse management techniques, the roe herring fishery is currently managed under a pool fishery system. In 2001, license holders were required to pool a minimum of eight seine licenses or four gillnet licenses in order to fish. (There was no maximum number of licenses in a pool.) Each pool fished independently until

[4] The data provided for the West Coast of Vancouver Island is incomplete, and only contains information received or observed by DFO personnel or contractors.

their quota was caught. If a pool caught more than their quota, the overages were disbursed in the following priority: given to other pools of the same gear type fishing in the same area; used by test boats of the same gear type working in the area (when feasible); and relinquished to the Herring Conservation and Research Society. Overages caught by a pool in one management area could not be transferred to a pool with an underage in another management area. Additionally, overages could not be transferred between gear types. All 2001 catches (seine, gillnet, and test), were validated at point of landing by industry funded, DFO approved validators supplied by J.O. Thomas & Associates Ltd.

The commercial roe herring fishery is traditionally allocated approximately 75-80% of the PSARC recommended allowable catch and the 2001 roe quota of 23,876 tons was 76% of the PSARC recommendation. (The 2001 quota was down from the 2000 quota of 28,815 tons.) The quota was split between the seine and gillnet gear sectors: 55% (13,132 tons) was allocated to seines, and 45% (10,744 tons) to gillnets. Total roe herring catch for all areas was 24,753 tons (13,862 tons caught by seine and 10,891 tons caught by gillnet). Information on quotas, catch, opening dates, and open areas can be found in the fishery notice in Table 3. Additional information on seine and gillnet quotas, catches, and number of licenses by license area are recorded in Table 4.

Table 5 documents all known 2001 herring spawnings by location, statistical area and survey method (i.e. surface or dive). An index of abundance is provided by the spawn area index, or SAI. The SAI is calculated by multiplying the length and width of the spawn by the percent of the area covered with spawn by the average number of layers of eggs.

5.2.1. Queen Charlotte Islands

No roe fisheries took place in the Queen Charlotte Islands in 2001.

5.2.2. Prince Rupert District

Seine fishery: A catch target of 700 tons was allocated to the Prince Rupert area roe herring seine fishery. The primary fishing area for seines was Kitkatla Inlet. A total of 13 licenses on 11 vessels (licensed into one pool) elected to fish this area. Each license share was 53.85 tons.

Generally, fish stocks showed well this year. A large body of fish staged in Willis Bay as usual but substantial stocks also entered the inlet through Freeman Pass. On March 22, a large body of fish was located on the Kitkatla Creek side of the inlet. Two test sets were conducted at 12.9% and 12.7% roe yield, with an average length of 20.2 cm. Industry representatives examined roe samples and, following much deliberation, decided to wait another day. The plan was for the test vessel *Prodigy* to make a set and obtain a sample as early as possible. Industry representatives could then examine the roe quality and, if it was deemed acceptable, a fishery would occur. It was decided that three vessels would be permitted to set if a fishing opportunity was to occur.

On the morning of March 23, numerous schools of herring were located along the Kitkatla Creek shore. The *Prodigy* obtained a sample, which was of acceptable quality. At 08:50 hrs subareas 5-4, 5-5 and a portion of 5-6 opened to roe herring seine fishing. Three sets were made and initial hails ranged from 150 to 200+ tons. As pumping progressed, it became evident that all sets were large, and that it was unlikely that any

further sets would be required. The area closed at 18: 55 hrs for the balance of the season. The final validated catch was 839 tons, which was 139 tons over the quota. This was the earliest seine opening in this area since 1984.

Gillnet fishery: The 2104 ton Prince Rupert gillnet quota was caught by 229 licences, which were organised into nine pools. Each gillnet license share was 9.19 tons.

An advisory meeting was held in Prince Rupert on March 23. The first spawn started March 29 near Garden Island in Prince Rupert Harbour, followed by spawning at Simpson Pt. in Big Bay the next day. The spawning continued on the 31st but did not expand as expected. It was decided in the afternoon that fishing would not start that day, but an anticipated opening of the fishery would be on the morning of April 1. On the morning of April 1 the extent of the spawn once again left a question of whether to open the fishery. After a brief consultation with the advisors an opening was announced for 10:30 hrs

The fishery started with approximately 66 punts operating: 34 in the Big Bay area and 32 in Venn Passage. By 1400 hrs the fleet was starting to leave Big Bay for Venn Passage, where the fishing was better. By 19:00 hrs only 17 punts remained in Big Bay. Estimated total catch prior to nightfall was 700 tons by pool hail and 900 tons by punt hail. By the morning of the second day all the gear was fishing the Venn Passage area. At 16:00 hrs the catch was 1,900 tons by pool hail, and many fishermen were finished. By the morning of the 3rd most of the gear had moved to Duncan Bay, and a total of 2,000 tons had been taken. By 09:00 hrs on the 4th 2,099 tons had been caught, and fishing had dropped to almost nothing. After considering that further fishing opportunities looked poor, and that the weather was deteriorating, the fishery was closed for the balance of the season on April 4th at 16:00 hrs, even though one pool was still short 4 tons of quota.

The fishery lasted a total of 77.5 hours with a landed catch of 2100 tons. It is estimated that 250 to 300 tons were caught in Big Bay, 100 to 200 tons in Duncan Bay, with the remainder being caught in the Venn Passage and Pillsbury Cove areas.

5.2.3. Central Coast

Seine Fishery: One hundred and one (101) seine licenses chose to participate in the Central Coast seine fishery. The licenses were fished from 84 seine boats, organised into six pools, with a per license share of 51.9 tons. The 2001 seine quota for the Central Coast was 5,242 tons.

A seine advisors meeting was held in Shearwater on March 15. Spiller Channel, Dundivan Inlet, and Seaforth Channel were identified as areas where resources and attention would be directed. On March 16 an early morning sounding and sampling program was conducted, and industry representatives examined the roe. However, only three of the six pools were represented, and the recommendation was to repeat the process the following morning, which was done. On the morning of the 17th, industry still felt the roe could wait another day, and had concerns about the poor weather forecast.

The fishery was opened on March 18, from 08:00 hrs to 20:00 hrs in the general areas of Lower Spiller and Seaforth Channels. (Spiller Inlet remained closed.) Specifically, the open areas were subarea 7-13, portion of subarea 7-14, portion of subarea 7-12, and a

portion of subarea 7-8. The eastern boundary of Seaforth Channel was from Early Point to Grief Island to Hyndman Reef to Idol Point. The western boundary of Seaforth Channel was from the East Side of Gale Pass to Fisher Point. Berry Inlet was closed at the narrows at the entrance. Fishing was very slow at the start. By 13:00 hrs the weather was blowing a southeast gale, and industry expressed safety concerns. No new sets were authorised until 15:20 hrs when the wind went down enough to fish safely. A catch of 1,956 tons was hailed at the end of the first day.

On March 19 the fishery opened at 05:00 hrs in the same areas as the previous day and continued until 23:00 hrs. The weather was poor in the morning blowing southeast but by mid-afternoon it had improved. One pool was complete by the end of the day. The total hailed catch for the day was 1,975 tons.

On the following day (March 20) the fishery again opened in the same areas and the same times as the previous day. The weather was good all day, and most of the catch occurred before 13:00 hrs. The total hailed catch for the day was 983 tons.

The fishery opened on March 21 for the fourth and final day at 05:00 hrs and closed at 12:35 hrs. There were 155 tons caught on the 21st. This brought the total hailed catch for the fishery to 5,069 tons, which was 173 tons under the quota.

The fishery was closed based on information from plant landings that indicated there was under hailing on the grounds. The final landings at the plant were 5,665 tons, which is 604 tons more than the hailed catches on the grounds and 423 tons more than the quota. Fifty-two of the vessels licensed for the area caught all the fish in 89 sets. An additional 137 sets were made that were water hauls.

Gillnet Fishery: Fifty-eight gillnet licenses formed five pools to catch the 500 ton Central Coast gillnet quota. This worked out to a per license share of 8.62 tons.

A small spawn started in East Higgins Pass on March 24, but did not grow significantly until March 26. The gillnet fishery opened until further notice at 09:00 hrs on March 26th in that portion of subarea 6-16 south of a line from Wilby Point to Lombard Pt, 6-17 and that portion of 7-3 west of a line from Jorkins Pt. to Aldrich Pt. The fishing effort was in the East Higgins Pass area from the South Lagoon west to just inside the gut inside East Higgins Pass. Twelve nets fishing for two pools were in the water just after the opening. Fishing was slow and steady all day and by 18:30 hrs 171 tons were caught. One pool had finished and two pools had yet to start. Fishing effort continued throughout the night and by 07:00 hrs on March 27 a total of 278 tons was caught, still with 12 nets in the water. The gillnet quota was achieved at 08:30 hrs on March 28. Catch on the grounds weighed out at 514 tons, and 509 tons were validated at the dock.

5.2.4. Strait of Georgia

Seine Fishery: The seine quota for the St. of Georgia was 7,190 tons. 128 seine licenses put onto 103 vessels chose to fish this area, and were organised into eight pools. The average catch per license was 56.17 tons.

There was good distribution of fish in Area 14 south in 2001, with large bodies of fish showing in Northwest Bay and in the deep off Columbia Beach. By March 1, fish had

moved into the area between Chrome Island and Repulse Point. This was the third year in a row where the fish have entered Baynes Sound from the bottom end, rather that crossing in over Comox Bar at the top end of Baynes Sound. A seine advisors meeting was held in Comox on March 2. Industry looked at roe samples on the morning of March 3, and advised they wanted to wait a day. Roe quality was deemed acceptable on the fourth, and the fishery was opened at 09:45 hrs, with all of Baynes Sound (statistical areas 14-8, -11, and –15) open. An in-fishery boundary extension, opening the area to Goose Spit due west, was put into effect at 16:40 hrs. There were 2.5 miles of spawn on the day of the fishery, located from below Mapleguard Point, and at Gartley Point in Upper Baynes Sound.

The fishery closed at 20:40 hrs, with a preliminary hailed catch of 7,104 tons. A total of 60 sets were made, including 8 sets that were water hauls, and 2 sets that were released due to lesser quality fish. All fish was caught by 45 vessels. The final validated landed weight was 7,358 tons, which was 168 tons over the quota.

Gillnet Fishery: Nine hundred and sixty-two (962) gillnet licenses, organised into 16 pools, chose to fish in the 8,140 ton St. of Georgia gillnet fishery, for a per license share of 8.46 tons.

A gillnet advisors meeting was held in Comox on March 5. The gillnet fishery opened on March 6 at 09:00 hrs in all of Area 14. At this time there were 24.5 nautical miles (nm) of spawning taking place. One hundred and sixty-six (166) skiffs were operating at opening time, fishing mainly from Thames Creek to Big Qualicum River; Cape Lazo; and the east coast of Denman Island from Longbeak to below Fillongley Park. Total catch for the day was 4,500 tons.

The fishery continued into March 7, with 85 skiffs working, mostly fishing in Area 14 north. One pool had caught their quota. Many pools reduced fishing effort on the second day, due to lack of packing capacity on the grounds. There was approximately 50 nm of active spawn in Area 14 on the morning of the 7th, which may be the biggest single active spawning day in the history of the St. of Georgia. Fishing had tapered off completely by the afternoon of the 7th, and total catch for the day was estimated to be 1,500 tons.

By March 8th, 67 skiffs were still fishing, with about half having moved down to Qualicum Beach area and more moving into the Qualicum / French Creek area as the day progressed. The spawn appeared to be almost over in Area 14 north. A good showing of fish was observed off Parksville Bay and in Northwest Bay in the early morning, but there was no active spawning and the fish backed off the beach at daylight. Fishing was very slow, with estimated catch for the day at 500 tons. There were still a couple of skiffs fishing at Cape Lazo.

The remaining gillnet fleet continued to fish in the Columbia Beach area on March 9th, with 5 pools that still had not reached quota. Fishing was very scratchy and there was virtually no active spawn in the area where the fishery was taking place. Fishing started to pick up at Columbia Beach in late afternoon and continued into the evening. A total of 39 skiffs were still active, with most fishing multiple nets. An announcement was made at 21:00 hrs advising that the area would close at 22:30 hrs. There were some problems getting all the gear out of the water at closure time and several nets remained in until

after midnight. The final validated catch was 8,281 tons, which was an overage of 141 tons.

5.2.5. West Coast of Vancouver Island

No roe fisheries took place on the West Coast of Vancouver Island in 2001.

5.3. SPAWN ON KELP FISHERY

Spawn on kelp fisheries generally take place in March and April, with fisheries progressing in-season from south to north. In some years, fishing will persist into May and June in more northerly locations. The fishery generally is carried out in specific locations in which there are adequate herring spawns, and which lend themselves to herring ponding operations.

The 2001 commercial spawn on kelp (SOK) fishery occurred in 4 of 5 geographic areas which correspond to the major stock assessment regions (Figure 1): Queen Charlotte Islands (Area 2E); Prince Rupert (Areas 3,4,5); Central Coast (Areas 6,7,8); and west coast of Vancouver Island (Areas 23, 24, 25). In addition, some licences operated in locations supporting minor herring stocks, including Quatsino Sound (Area 27), Johnstone St. (Area 12), and Smiths Inlet (Area 10). A restricted management regime was in effect for the Queen Charlotte Islands and the West Coast of Vancouver Island, due to conservation concerns. The final management regime in these two regions was developed in consultation with the license holders, and involved pooling with other operators; open pond fishing; and using only a limited number of closed "attractor" ponds.

During the annual herring planning process herring is set-aside from the TAC for the spawn on kelp fisheries. This allotment is to accommodate for the average per-license production of 8 tons of spawn on kelp product. Mortality and egg loss is considered in the formula used to calculate the set-aside of 100 tons of herring per closed pond operation and 35 tons per open pond. In 2001, 1600 tons of herring were set aside from Prince Rupert and the Central Coast; 375 tons were set aside from the minor stock assessment areas; and an additional 510 tons were set aside in the Central Coast for FN communal spawn on kelp fisheries. This set-aside allowed for a commercial spawn on kelp coastwide product quota of 415.2 tons.

Forty-six category "J" licenses were issued to harvest herring spawn on kelp in 2001. The majority of licence holders in the fishery are First Nations individuals or tribal groups (37 of 46 licences). Individual quotas (IQ) are specified on each licence. In 2001, individual quotas were eight tons of drained product, subject to the quota carry over provisions. Exceptions to the eight ton catch allocation exist for those Native band licences, which have not met roe herring licence retirement provisions[5], and for three Heltsiuk licenses (FJ-1, FJ-39, and FJ-41). During treaty negotiations, an interim treaty measure allowed the division of the three Heiltsuk closed pond operations, (FJ-1, FJ-39 and FJ-41), into three open ponds each. This entitled the Heiltsuk to harvest an additional 96,000 lbs. of SOK product for the 2001 fishing season.

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[5] The 10 FN band licenses introduced in 1991 and 1992 are each required to designate 6 gillnet licenses as inactive in a given year, unless they have permanently retired the licenses. If a license does not retire all 6 licenses, their SOK quota is prorated.

A quota carry-over program introduced in 1996 was continued in 2001. This program allows spawn on kelp licence holders to carry over reasonable IQ overages or underages, from one year to the next. The rules for carry over are as follows:

- Licence holders whose product weight at the end of the season is under the IQ by 2000 lbs. or less will have the equivalent weight of the underage added to their IQ in year 2002.
- Licence holders whose product weight at the end of the season is under the IQ by more than 2000 lbs. will have only 2000 lbs. added to their year 2002 IQ and will forego the remainder.
- Licence holders whose product weight at the end of the season is over the IQ by as much as 1000 lbs. may retain the overage, and the equivalent weight of the overage will be subtracted from the licence holder's year 2002 IQ.
- Licence holders whose product weight at the end of the season is over the IQ by more than 1000 lbs. may retain 1000 lbs. of the overage, and must relinquish the remainder. Further, the weight of the total overage will be subtracted from the licence holder's IQ in year 2002.

The weight of the spawn on kelp product to be applied against an IQ will be the total drained weight of spawn on kelp product validated at the landing port. A salt allowance, equal to 5% of the total drained weight, is applied to compensate for salt and entrained water (i.e., the total validated weight will equal the drained weight minus 5% of the drained weight).

The transfer of SOK product between licence holders operating in different stock assessment regions is not allowed. Spawn on kelp product can be transferred on-grounds between licence holders in the same stock assessment region. In-plant transfers of product between licence holders from the same stock assessment area can be carried out subject to the prior approval of a Fisheries and Oceans representative.

The spawn on kelp monitoring program (SOKMP) funded by the Spawn on Kelp Operators Association (SOKOA) which was introduced in 1996 continued for the sixth consecutive year in 2001. The objectives of this program include both the monitoring of on-grounds fishing activity and the port validation of product. On-grounds monitoring maintains a record of fishing activities and operations. Port monitoring validates the landed harvest documented by on-grounds records, validates drained weight measurements and in-plant transfers of both processed and unprocessed product between licence holders, and audits the utilisation of J-licence export buckets and bucket decals during processing. These objectives were met through 13 on-grounds assignments, which monitored harvest leaving the grounds and maintained a data record of SOK operations.

One on-grounds observer assignment in the Queen Charlotte Islands covered two five-licence pool operations in Area 2E.

Two assignments in the Prince Rupert District covered 11 J-licence operations. Six of these licenses operated in three two-licence pools in Areas 3 / 4. The other five licenses operated in Area 5.

Prior to the season, seven monitoring assignments were identified for the Central Coast to cover operations of 18 J-licences Areas 6, 7, 8,10, and 12. When DFO authorised monitoring requirements for the Heiltsuk operations that were inconsistent with monitoring requirements in other areas of the coast, SOKOA withdrew monitoring support for the Heltsiuk licenses. Ultimately, three fishery officers and a contracted observer monitored the Heiltsuk operations with a contribution of resources from the Heiltsuk Fishery Program. Six on-grounds assignments monitored the operations in Areas 6, 10 and 12.

Four assignments were set for the West Coast of Vancouver Island. One assignment covered three open-pond operations in Area 27; the remaining assignments covered a pool of four licenses in Areas 25 and 24. The assignment set for Barkley Sound was redirected to Area 12.

All areas in which SOK operations were conducted this year were covered to completion by the SOKMP with the following exceptions: early operations in Area 2E; Heiltsuk communal licenses in Areas 7 and 8; and late season operations (post May 30, 2001) in Areas 4 and 5.

Additionally, the SOKMP provided coverage by eight port monitors, who were assigned to one of six locations on the coast, and observed landings to 11 different processors. Port monitoring efforts consisted of approximately 550 port monitoring hours covering 66 deliveries of SOK product. Monitors validated landed harvest documented by on-grounds records, validated drained weight measurements and in-plant transfers of both processed and unprocessed product between license holders, and audited the utilisation of J-license decals and pails during processing.

The SOK coastwide landings for 2001 were 401.73 tons based on 8 ton individual license quotas adjusted according to carryovers from 2000. These landings include the 48 ton enhanced production from three Heiltsuk communal licenses. SOK landings by area can be found in Table 6. Approximately 60% percent of the total harvest came from closed ponds and 40% from open ponds and lines. Most of open line production came from Central Coast areas with limited production from Queen Charlotte Islands. The majority of the West Coast of Vancouver Island production came from closed ponds.

5.4. WINTER FOOD AND BAIT FISHERY

The winter food and bait fishery is intended to provide a small quantity of herring to firms wanting to engage in secondary processing of food herring products, and to satisfy frozen bait requirements of commercial and sports fishers.

Interested vessel owners submit an application to fish in an area, and vessels are selected to participate in this fishery through a lottery system. For the 2000 season, only those vessels that had "HS" licenses designated to them were eligible for entry into the lottery draw. Vessels that had an "A" seine or "T" trawl license were not eligible to apply as in past years. This change was brought about to prevent vessels that were not suitable, or not properly equipped to catch and handle herring, from entering the fishery. Vessels that were selected in the lottery system were issued a 2000 non-transferable 50 ton "ZM" category license, after producing documentation showing that the vessel had an approved stability certificate for catching or packing herring as required under the Canada Shipping Act. Vessels participating in this fishery must have a full sized herring

seine net All herring caught under this vessel quota system must, as a condition of the license, be delivered to a British Columbia port for catch weigh-in. Additionally, vessels were required to have an approved observer on board at all times while carrying out fishing and off loading operations.

The 2000 allocation for the food and bait herring lottery fishery was 900 tons, broken down into 600 tons for the St. of Georgia, (an increase of 50 tons over the 1999 quota), and 300 tons for Johnstone St. Catch by fishery and area is detailed in Table 7.

5.4.1. Strait of Georgia

Half of the 600 ton St. of Georgia allocation was used to satisfy the market demand for food herring (pickled herring) and the other half was used for commercial bait. Twelve vessels were selected to fish in the St. of Georgia food fishery. During this year's fishery, all of the catch came from Area 17, (mainly from outside Nanoose Bay near Maude Island). The majority of the catch was harvested in November, with the remainder being caught by the first week in December. Good showings of stocks were located outside Nanoose Bay in the vicinity of Maude Island. There was a total of 67 tons of overage from the St. of Georgia fishery this year. The only problem identified in this year's fishery was that a few vessels neglected to hail out to DFO prior to fishing.

5.4.2. Johnstone Strait

Six (6) vessels were picked to catch the Johnstone St allocation of 300 tons, of which 200 tons is mainly utilised for frozen sport bait and 100 tons for food herring. No fishable stocks were located in the Deepwater Bay area during the fishery period. This same migration pattern occurred in 1999. Therefore, all of the Johnstone St licences were amended to allow fishing in Areas 14 and 17. All of the Johnstone St. lottery catch came from Area 17 near Maude Island during January and early February. The total catch was 45 tons short of the Johnstone St. target of 300 tons. This shortfall occurred because one of the vessels that was licensed to fish was damaged by fire and by the time the alternate vessel had geared up, it could not find a market for its product.

5.5. SPECIAL USE FISHERY

The special use herring fishery provides opportunities to utilise herring in alternative ways to the mainstream herring fisheries. Herring are caught for use as commercial sport bait; personal-use commercial bait; food, charity sales, zoo and aquarium food, and commercial bait sales.

A ZX or ZY licence is required to participate in the fishery, and a commercially licensed vessel is required for harvesting catch. Herring caught for personal-use commercial bait require a one ton ZX licence. A 3-ton ZY licence is required if the herring are caught for sale. License holders can be re-issued another license in the same license year provided that the license holder can demonstrate that the current license allocation of herring has been utilised (i.e. by submitting a completed landing report).

The allocations for the special use fishery are in addition to the fall food and bait lottery fishery. In 2000, the coastwide allocation for special use fisheries was 935 tons (Table 2). The breakdown was as follows: 10 tons commercial bait sales; 370 tons sports bait sales (which includes Walcan's 300 ton licence); 95 tons for personal use bait; 200 tons for food (i.e. Fjord licence); 150 tons for charity sales; and 110 tons for zoos and

aquariums. There were 48 ZX and 28 ZY licences granted in 2000. Catch totals tallied from landing reports by licence type and area, are summarised in Table 7.

5.6. HERRING CONSERVATION AND RESEARCH SOCIETY

At the 1995 fall HIAB meeting, Department of Fisheries and Oceans (DFO) and industry representatives discussed and agreed to the formation of a non-profit organisation, the Herring Conservation & Research Society of BC (HCRS). The role of the Society is to support research that addresses the need for knowledge and understanding of herring biology and the factors that affect fluctuations in abundance. The goal of the HCRS is to assist DFO in developing the tools necessary for ensuring precautionary and risk averse management of the herring resource.

In the fall of 1996, the HCRS entered partnering arrangements with DFO related to fisheries management. A joint project agreement was signed, wherein the HCRS assumed responsibility for the test fishing program. The Society was given an allocation of fish to use to conduct the test fishing program. This allocation was determined by HIAB, in conjunction with DFO, and was included in the 1996/97 TAC. A portion of the TAC has been allocated to the HCRS to carry out test fishing activities in each subsequent year

The HCRS conducted test fishing activities for the fifth year in 2001[6]. In an effort to reduce overages, the roe fishery management plan stipulated that any overages caught by a seine or gillnet pool would be shared in the following order of priority: i) given to another pool in the area; ii) used as test payment; and iii) relinquished to the HCRS. Seven hundred and forty (740) tons of test and roe overage remained after all pools had caught their quotas and all test vessels had completed their catch allocations. This overage was relinquished to the HCRS, who then sold the fish to companies that had licenses participating in the roe herring fisheries in each area. The fish was distributed on a "share basis" (i.e. one license fishing in an area was entitled to purchase one share of overage). Thirteen companies were eligible to purchase overages in 2001. The HCRS issued invoices to these companies totalling seven hundred and eighty-two thousand ($782,000) dollars.

Research activities funded by the HCRS are focused in the areas of stock assessment, annual data collection and database management, stock identification, and the influence of habitat and climate factors on herring survival and recruitment. Stock assessment related research activities consist of reviewing and evaluating the biological assumptions underlying the assessment models and adapting them accordingly. Recent contributions include reviews of adult natural mortality rate and descriptions of variations in size-at-age. A recent research initiative is related to investigating the use of video technology to map and survey herring spawning beds too deep for traditional Scuba surveys. A considerable amount of effort and resources are being expended in the area of stock identification. Projects include micro-satellite DNA analysis, coded-wire tagging, and herring metapopulation analysis. Two field surveys have been conducted for several years. The first is a summer survey of relative herring abundance along the south-west coast of Vancouver Island, with a purpose of providing a recruitment forecast for the assessment of the west coast of Vancouver Island (WCVI) herring stock. The second

[6] See Section 5.7 Test Fishing Program

field survey examines the summer distribution of adult and juvenile fish in the St. of Georgia and Johnstone St. Additionally, the distribution, abundance, food and feeding of juvenile herring and salmonids are examined to address the role of forage fish in an ecosystem. Projects are addressing the effects of habitat and climate issues on herring survival and productivity. For example, one program is examining the influence of climatic variations and species interactions on WCVI herring recruitment and growth. Other work in this area includes a study that is monitoring euphausiid and copepod population biology to assess the impact of their productivity on the population biology of WCVI herring.

In 2001, the HCRS approved and funded research and management projects totalling $827,000 as follows:

- biosampling database
- video survey of deep spawn in Barkley Sound
- microsatellite DNA analysis
- coded wire tagging study
- herring metapopulation analysis
- Barkley Sound juvenile herring survey
- area based analysis
- otolith microchemistry
- juvenile herring surveys in St. of Georgia
- funding for spawn overflights in 2002
- funding to the Department for salaries for 1.5 management technicians
- herring publication

5.7. TEST FISHERY

A regional herring test fishing plan is developed for each season. The plan takes into consideration stock assessment requirements (i.e. are there enough vessels to conduct spawn surveys and to adequately sample fish stocks); management needs; and industry demands for timely size and roe maturity information. In most cases, a test fishing vessel is required to retire a license for the season (either seine or gillnet, depending on the charter) in order to participate in the test fishing program.

5.7.1. 2001 Test Fishing Program

The 2001 test fishing plan was approved by the HIAB at the October 19, 2000 meeting. The HCRS received an allocation of 2,360 tons, (which included 200 tons to fund research projects[7]), to administer the test fishing program. This allocation was part of the TAC.

There were 22 vessels in the 2001 herring test fishing program. A summary of vessels by "category", areas worked, and license type required is found in Table 8.

In the Queen Charlotte Islands, the seine test vessel *Viking Pride* worked primarily in Area 2E, but also provided coverage in Area 2W. The *Western Hunter* conducted all dive surveys in the Queen Charlotte Islands, and had no separate testing duties. All payment fish for QCI test fishing vessels was caught in Prince Rupert District, because of low stock abundance in QCI.

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[7] See Section 5.6 (Herring Conservation & Research Society) for additional information

Seine test fishing in Prince Rupert District was done by the *Ocean Venture*, a full seine charter working primarily in Areas 3 / 4; and the *Prodigy*, who worked in Area 5. Gillnet test fishing and dive survey duties were contracted to the *Royal Pride*, who also acted as the gillnet management platform. *My Lady Jane* continued coded wire tagging in Prince Rupert on the second half of his charter. A total of 431 tons of test fish were required to pay for QCI and Prince Rupert test boats.

Five vessels worked in the Central Coast region in 2001: Ocean *Explorer* was the gillnet test and dive survey vessel; *Christav* had seine test and dive survey duties; *Kynoc* was the full seine charter; *Lasqueti Star* acted as the management platform; and *Ocean Royal* was the split charter with the St. of Georgia. The Central Coast test fish requirement (including payment fish for one of the test vessels working on the west coast of Vancouver Island) was 569 tons.

A total of 10 vessels participated in the St. of Georgia / Johnstone St. test fishing program, covering a range of duties. *Thunder 1* and *Elling K* were gillnet test vessels and also conducted all dive surveys in this area; *Angela Lynn* and *Argent No. 1* were full seine test fishing charters; Ocean *Royal* was split with the Central Coast; *Royal Mariner* was a short no-license charter; *Snowdrift* was the management platform; and *My Lady Jane* caught and tagged all herring for the coded wire tagging program both in the St. of Georgia and in Prince Rupert. Additionally, the *Port Lincoln* monitored and recorded spawns in Area 12, as did the *Discovery Huntress* in Area 13. Both Johnstone St. spawn survey vessels were paid in dollars. The test requirement for the St. of Georgia vessels (including payment fish for two of the vessels working on the west coast of Vancouver Island) was 849 tons.

The west coast of Vancouver Island was covered by 3 seine test vessels: *Ante B* was a seine test vessel working in Areas 23 and 24. *Viking Joy* and *Royal Viking* had dive survey as well as seine test duties. The *Viking Joy* worked primarily in Areas 23 and 24, while the *Royal Viking* worked in Areas 25, 26, and 27. Payment fish for the *Ante B* was caught in the Central Coast and payment fish for the *Viking Joy* and *Royal Viking* was caught in the St. of Georgia.

Total test fish requirement for all areas in 2001 was 1,849 tons, and 1,709 tons were caught. (The shortage was made up from pool fishery overages.) Test vessels are listed by area of operation in Table 9. Additionally, this table includes dates of operation, bid rates, duration and final requirement of each charter. Table 10 records test fishing catch by location and section, as well as test fishing catch requirement for each stock assessment region.

ACKNOWLEDGEMENTS

Portions of the information included in the "Summary of Fisheries" section were obtained from managers' reports presented at the April HIAB meeting. Charles Fort provided spawn summary data in Table 5. Table 6 (the spawn on kelp table) was adapted from a table put together by J.O. Thomas and Associates on behalf of SOKOA. Isaac Schweigert prepared many of the other tables. Editorial comments were provided by Dennis Chalmers, Laurie Gordon, and Peter Midgley.

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Table 1. 2001 Forecast biomass and recommended yield (tons) by region.

Region	Cut-off Biomass (tons)	Model Used*	Recruitment Assumption	Forecast Biomass (tons)	Recommended Yield (tons)	Observed Biomass (tons)•
Queen Charlotte Islands	11,795	EM	Average	9,590	0	15,543 (a)
Prince Rupert District	13,338	EM	Average	25,520	5,104	39,904 (g)
Central Coast	19,401	EM	Average	40,520	8,102	33,180 (p)
Strait Of Georgia	23,369	EM	Average	91,060	18,210	118,829 (a)
West Coast Vancouver Island	20,723	EM	Poor	16,040	0	14,991 (a)
Total				**182,730**	**31,416**	**222447**

* EM = Escapement Model

• Based on 2001 escapement model estimates. Letter in brackets describes observed recruitment : a = average, g = good, p = poor.

Table 2. Herring Working Group 2000/2001 expected use allocations (tons) by fishery and region.

Region	Stock Assessment Committee Recommended Catch [a]	Herring Management Working Group Allocations											
		FSC [b]	Roe Herring	SOK [c]	Comm Com	Winter Food & Bait [d]	Bait		Personal Use Bait	Charity	Zoo & Aquar	HCRS (g)	Total Non Roe
							Comm.	Sport					
Queen Charlotte Islands	0	150	0	10 LIC	0	0	0	0	0	0	0	0	150
Prince Rupert District	5104	600	2804	1100	0	0	10	10	50	0	0	530	2300
Central Coast	8102	600	5742	(170) 500	510	0	0	10	20	0	0	720	(170) 2360
Strait Of Georgia	18210	35	15330	(100) 0	0	1400	0	50	25	150	110	1110	(100) 2880
West Coast Vancouver Island	0	150 [e]	0	(105) 4 LIC	0	0	0	0	0	0	0	0	(105) 150
TOTAL	31416	1535	23876	(375) 1600	510	1400	10	70	95	150	110	2360	(375) 7840

[a] Based on forecast abundance of major migratory stocks (Minor stocks are shown in brackets).
[b] Food, Social, Ceremonial: communal licences for food social ceremonial purposes will not limit access. DFO will work with the First Nations on a co-operative catch monitoring program.
[c] The status of 4 SOK Licenses in WCVI and 10 in QCI was not determined at the time the expected use table was developed.
[d] Includes 200 ton allocation to Fjord and 300 ton to Walcan
[e] Includes 100 T for closed pond

Table 3. Final fishery notice of the 2001 roe herring fishing season.

Subject: FN0282-Roe Herring: 2001 Fishery/Catch Update. The 2001 Roe Herring fishery is closed for the balance of the season. Fishery/Catch update in tons:

AREA	NO. OF LICENCES	TARGET CATCH	CATCH*	% TOTAL CATCH	FISHERY DATES AND LOCATIONS
Strait of Georgia:					
Seine	128	7,190	7,358	29.70%	Mar 4, 09:45 to 20:40 in Subareas 14-8, 14-11 and 14-15
Gill Net	962	8,140	8,281	33.40%	Mar 6, 09:00 to Mar 9, 22:30 in Subareas 14-1 to 14-13 and 14-15
Central Coast:					
Seine	101	5,242	5,665	22.90%	Mar 18, 08:00 to 20:00; Mar 19, 05:00 to 23:00; Mar 20, 05:00 to 23:00; Mar 21, 05:00 to 12:35 in Subarea 7-13, and ptns Subareas 7-8, 7-12,7-12 and 7-14
Gill Net	58	500	509	2.10%	Mar 26, 09:00 to Mar 28, 08:30 in ptn Subarea 6-16, Subareas 6-17 and 7-3
Prince Rupert:					
Seine	13	700	839	3.40%	Mar 23, 08:50 to 18:55 in Subareas 5-4, 5-5 and ptn 5-6
Gill Net	229	2,104	2,100	8.50%	Apr 1, 10:30 to Apr 4, 16:00 in ptns Subareas 3-4 and 4-10,and Subareas 4-5 to 4-9 and 4-14
Total–Sn	**242**	**13,132**	**13,862**	**56.00%**	
Total–Gn	**1,249**	**10,744**	**10,890**	**44.00%**	
Total	**1,491**	**23,876**	**24,752**	**100.00%**	

* Catch numbers are validated weights (tons) at point of landing.

Table 4. 2001 Roe quotas and validated landed catch (tons) by gear type and region.

		SEINE				GILLNET				TOTAL ROE	
Region	**Statistical Areas**	**Quota**	**# of Licences**	**# of Pools (SN)**	**Catch**	**Quota**	**# of Licences**	**# of Pools (GN)**	**Catch**	**Quota**	**Catch**
Queen Charlotte Islands	2E	No Seine Fishery				No Gillnet fishery					
Prince Rupert	3-5	700	13	1	839	2104	229	9	2100	**2804**	**2939**
Central Coast	6-8	5242	101	6	5665	500	58	5	509	**5742**	**6174**
Strait of Georgia	14-18	7190	138	8	7358	8140	962	16	8281	**15330**	**15639•**
West Coast Vancouver Island	23-25	No Seine Fishery				No Gillnet Fishery					
TOTAL		**13132**	**242˙**		**13862**	**10744**	**1249†**		**10890**	**23876**	**24752**

• Does not include 40 tons of seized fish.
˙ Number of seine licenses does not include 10 licenses retired for test fishing;
† Number of gillnet licenses does not include 7 licenses retired for test fishing;

Table 5. 2001 Spawn summary by location and statistical area.

Spawning Ground	Spawn Date Start	End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Statistical Area 2W: West Coast Q.C.I.							
Dive Survey							
Louscoone Inlet E	27-Feb	27-Feb	450	24	0.83	44	3.91
Bottom				24	0.58	40	2.47
Macrocystis			200	13	1.25		0.59
Port Louis	21-Mar	21-Mar	400	10	3.05	40	4.87
Bottom				10	1.83	8	0.61
Skindaskun Is	27-Feb	27-Feb	1000	35	1.63	39	21.98
Bottom				35	0.42	23	3.31
Dive Survey Area Total							37.75
Statistical Area 2E: East Coast Q.C.I.							
Dive Survey							
Bag Hrbr	1-Mar	5-Mar	850	41	1.57	53	29.02
Bottom				41	0.25	20	1.76
De la Beche Inlt	11-Mar	11-Mar	450	40	1.54	67	18.37
Bottom				40	1.38	20	4.92
Haswell Bay	29-Mar	5-Apr	975	14	1.28	52	8.95
Bottom				14	0.73	35	3.43
Macrocystis			350	8	2.00		3.43
Haswell Bay	29-Mar	5-Apr	2500	47	2.33	76	207.47
Bottom				47	1.02	39	47.14
Macrocystis			2500	4	0.63		1.09
Hoskins Pt	3-Apr	8-Apr	3550	60	2.70	35	201.51
Bottom				60	1.80	47	178.73
Macrocystis			200	60	2.30		0.07
Huston Inlt E	27-Mar	27-Mar	1300	17	1.68	73	27.03
Bottom				17	1.50	26	8.52
Hutton Inlt	4-Mar	5-Mar	200	140	0.25	140	9.80
Macrocystis			200	160	1.50		1.53
Hutton Inlt	2-Apr	5-Apr	1600	13	1.00	47	9.74
Bottom				13	1.00	10	1.99
Macrocystis			450	15	1.63		1.71
Huxley Is	8-Apr	8-Apr	800	65	1.18	127	78.05
Macrocystis			400	85	1.50		1.68
Huxley Is	8-Apr	8-Apr	1050	86	1.78	41	65.49
Bottom				86	1.31	14	16.87
Macrocystis			350	57	1.39		0.05
Jedway Bay	7-Mar	12-Mar	350	220	3.00	60	138.60
Jedway Bay	7-Mar	12-Mar	1100	66	1.92	87	121.51
Bottom				66	0.36	56	14.64

Table 5. Continued

Spawning Ground	Spawn Date Start	Spawn Date End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Kankidas Pt	7-Mar	12-Mar	1750	83	1.66	25	60.49
Bottom				83	1.75	14	35.96
Kilmington Pt	21-Apr	23-Apr	1050	15	0.09	37	0.50
Bottom				15	0.25	33	1.27
Macrocystis			600	18	0.39		0.42
Marco Is	7-Apr	7-Apr	450	35	0.16	44	1.09
Bottom				35	0.13	43	0.87
Macrocystis			450	10	0.25		0.02
Marco Is	7-Apr	7-Apr	650	29	1.29	32	7.69
Bottom				29	0.64	41	4.95
Macrocystis			150	30	2.50		1.18
Marco Is	7-Apr	7-Apr	1400	113	2.65	57	237.99
Bottom				113	1.00	17	26.25
Macrocystis			1000	58	3.00		4.73
Newberry Cv	3-Apr	8-Apr	250	40	0.67	47	3.11
Macrocystis			250	50	2.50		2.13
Sedgwick Bay	5-Apr	5-Apr	1400	30	1.56	90	58.23
Bottom				30	1.21	24	12.10
Macrocystis			1400	32	2.67		9.71
Smithe Pt	1-Mar	5-Mar	4100	69	0.62	62	107.55
Bottom				69	0.53	11	16.77
Macrocystis			2800	69	0.70		13.87
Traynor Cr	21-Apr	23-Apr	1800	16	1.06	39	11.71
Bottom				16	1.38	41	16.01
Traynor Cr	10-Mar	11-Mar	2200	92	2.35	53	249.15
Bottom				92	1.32	36	94.91
Macrocystis			1500	30	2.28		4.86
Werner Pt	3-Apr	8-Apr	5000	123	4.23	34	890.32
Bottom				123	3.33	83	1703.08
Werner Pt	3-Apr	8-Apr	2300	78	1.18	38	80.44
Bottom				78	0.75	38	50.81
Macrocystis			1950	86	2.08		56.16
Dive Survey Area Total							4967.40
Statistical Area 03: Nass							
Dive Survey							
Grassy Pt	31-Mar	1-Apr	1800	54	0.46	35	15.44
Bottom				54	0.19	24	4.42
Stumaun Bay	31-Mar	1-Apr	1800	34	0.49	46	13.63
Dive Survey Area Total							33.48
Statistical Area 04: Skeena							

Table 5. Continued

Spawning Ground	Spawn Date Start	Spawn Date End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Dive Survey							
Belletti Pt	1-Apr	3-Apr	3960	206	0.95	41	318.15
Bottom				206	0.45	21	77.09
Big Bay	1-Apr	3-Apr	6250	267	1.19	47	938.29
Bottom				267	0.67	6	72.61
Burnt Cliff Is	1-Apr	3-Apr	2800	139	0.45	39	69.29
Bottom				139	0.50	38	75.13
Butler Cv	3-Apr	5-Apr	350	37	1.25	88	14.18
Dodge Cv	3-Apr	3-Apr	1560	52	0.83	39	26.46
Duncan Bay	2-Apr	5-Apr	2800	189	0.31	36	59.31
Bottom				189	0.06	10	3.50
Macrocystis			3150	159	0.31		111.64
Hunt Inlt	10-Apr	18-Apr	2450	155	1.97	49	362.43
Macrocystis			100	36	0.90		3.45
Hunt Inlt	10-Apr	18-Apr	350	29	0.25	43	1.10
Island Pt	10-Apr	18-Apr	2000	59	0.64	88	66.12
Bottom				59	0.17	15	3.02
Metlakatla Village	1-Apr	2-Apr	4550	168	0.40	60	187.19
Bottom				168	0.21	25	40.00
Observation Pt	1-Apr	2-Apr	1500	104	0.38	25	14.99
Bottom				104	0.01	7	0.11
Pearl Hrbr	31-Mar	31-Mar	1400	104	0.35	61	30.86
Pike Is	1-Apr	3-Apr	8400	84	0.49	50	170.76
Bottom				84	0.01	3	0.20
Pillsbury Cv	29-Mar	2-Apr	6700	163	1.59	47	810.90
Bottom				163	0.67	27	199.88
Reeks Pt	1-Apr	2-Apr	2560	186	0.59	34	96.19
Bottom				186	0.01	3	0.15
Shkgeaum Bay	1-Apr	3-Apr	4600	79	0.71	46	116.79
Bottom				79	0.13	21	9.89
Swamp Is	3-Apr	5-Apr	2450	201	0.29	30	43.12
Bottom				201	1.56	5	36.00
Macrocystis			700	27	0.25		7.15
Swamp Is	3-Apr	5-Apr	1500	113	0.23	37	14.61
Tree Bluff	1-Apr	2-Apr	5380	244	0.62	38	312.56
Bottom				244	0.10	8	10.05
Macrocystis			350	150	0.75		8.53
Venn Passage	1-Apr	2-Apr	4100	94	1.04	29	115.57
Bottom				94	1.25	13	61.83
Dive Survey Area Total							4489.10
Statistical Area 05: Grenville-Principe							
Dive Survey							
Absalom Is	/ /		500	173	0.98	38	31.93
Bottom				173	0.88	33	25.37

Table 5. Continued

Spawning Ground	Spawn Date Start	End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Dries Inlt	31-Mar	5-Apr	3850	226	0.96	42	351.25
Bottom				226	0.64	19	108.23
Gurd Inlt	31-Mar	5-Apr	2100	39	1.79	54	78.59
Bottom				39	2.50	6	11.18
Gurd Is	31-Mar	5-Apr	3050	62	0.88	46	77.45
Bottom				62	0.44	24	20.04
Gurd Is	31-Mar	5-Apr	350	23	1.05	50	4.21
Bottom				23	0.70	30	1.70
Gurd Is	31-Mar	5-Apr	550	13	1.51	43	4.67
Bottom				13	0.26	35	0.64
Gurd P	31-Mar	5-Apr	4400	52	1.25	73	208.04
Bottom				52	1.04	24	56.75
Kitkatla Cr	31-Mar	6-Apr	3500	95	3.09	62	631.67
Bottom				95	0.88	16	48.13
Ness Is	/ /		2100	54	0.92	64	66.60
Bottom				54	1.21	28	38.11
Porcher Pen	/ /		1050	37	0.35	44	5.85
Bottom				37	0.18	41	2.76
Porcher Pen	/ /		400	36	0.67	55	5.34
Robert Is	3-Apr	5-Apr	2900	118	2.11	87	629.58
Bottom				118	0.92	10	30.17
Snass Pt	4-Apr	6-Apr	3500	55	1.53	66	195.39
Bottom				55	1.29	36	88.47
Dive Survey Area Total							2722.11
Statistical Area 06: Butedale							
Dive Survey							
Abrams Is	3-Apr	7-Apr	2100	75	1.73	44	120.40
Bottom				75	0.51	34	27.31
Macrocystis			300	22	6.50		29.06
Clifford Bay	4-Apr	5-Apr	3500	57	1.36	64	172.97
Bottom				57	0.21	11	4.66
Larkin Pt	3-Apr	7-Apr	3100	103	2.68	43	368.47
Bottom				103	1.11	36	125.70
Macrocystis			2400	33	2.73		6.02
Larkin Pt	10-Apr	10-Apr	700	26	0.72	60	7.78
Bottom				26	1.56	38	10.66
Macrocystis			700	23	0.75		2.75
Larkin Pt	10-Apr	10-Apr	900	70	0.54	50	16.98
Bottom				70	0.63	36	14.38
Macrocystis			900	58	0.75		11.73
Marvin Is	4-Apr	5-Apr	850	20	0.15	68	1.78
Bottom				20	0.01	18	0.03
Osment Inlt	4-Apr	5-Apr	1400	47	0.42	50	13.79
Bottom				47	0.30	34	6.69

Table 5. Continued

Spawning Ground	Spawn Date Start	End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Macrocystis			1400	36	1.20		8.11
Parsons Anch	3-Apr	6-Apr	3200	31	1.24	33	40.08
Bottom				31	0.88	33	27.80
Macrocystis			3200	30	2.75		43.75
Wilby Pt	3-Apr	6-Apr	7350	25	1.18	44	95.71
Bottom				25	0.42	34	26.12
Macrocystis			6850	21	1.67		48.91
Dive Survey Area Total							1231.63
Statistical Area 07: Bella Bella							
Dive Survey							
Boddy Pass Nrws	4-Apr	5-Apr		17	1.92	45	47.30
Bottom				17	1.04	46	25.86
Bullen Rk	22-Mar	24-Mar	1750	42	1.45	40	42.55
Bottom				42	0.56	51	21.14
Bush Pt	22-Mar	24-Mar	2600	54	2.08	31	91.99
Bottom				54	2.05	67	193.98
Cecilia Is	26-Mar	26-Mar	350	100	2.70	64	60.79
Bottom				100	0.25	14	1.25
Cecilia Is	26-Mar	26-Mar	500	65	2.63	40	34.13
Bottom				65	4.00	40	52.00
E Higgins Pass	25-Mar	4-Apr	7100	66	1.69	46	365.35
Bottom				66	0.97	57	255.95
Macrocystis			4500	18	4.04		52.25
E Higgins Pass	25-Mar	4-Apr	850	89	2.22	37	61.85
Bottom				89	0.06	46	1.99
E Higgins Pass	25-Mar	4-Apr	400	10	0.38	53	0.79
Bottom				10	0.07	61	0.17
E Higgins Pass	25-Mar	4-Apr	2400	82	1.64	72	231.29
Bottom				82	0.86	25	43.12
E Higgins Pass	25-Mar	4-Apr	5700	41	1.88	44	196.30
Bottom				41	0.72	60	102.48
Macrocystis			3400	12	2.75		11.97
King Cv	25-Mar	25-Mar	650	103	1.91	31	39.26
Bottom				103	1.00	12	8.05
Little Thompson Bay	4-Apr	4-Apr	2450	14	1.20	51	20.47
Bottom				14	1.13	57	21.31
Mosquito Bay	24-Mar	24-Mar	8900	18	1.87	57	172.78
Bottom				18	1.26	77	155.94
Neekas Inlt	25-Mar	25-Mar	1000	13	1.63	41	8.98
Bottom				13	1.03	69	9.43
Port Blackney	26-Mar	29-Mar	700	65	4.01	55	100.94
Bottom				65	2.29	34	35.38
Powell Anch	24-Mar	28-Mar	2800	65	1.92	61	213.52
Bottom				65	0.89	40	65.68

Table 5. Continued

Spawning Ground	Spawn Date Start	End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Powell Anch	24-Mar	28-Mar	2400	53	3.17	45	181.97
Bottom				53	1.24	44	69.24
Reid Pass	24-Mar	24-Mar	900	19	1.03	59	10.44
Bottom				19	0.80	34	4.59
Reid Pass	24-Mar	24-Mar	1000	14	2.67	45	16.80
Bottom				14	2.00	20	5.71
Spiller Chnl	22-Mar	24-Mar	2800	11	2.14	60	40.40
Bottom				11	1.18	66	24.36
Spiller Chnl	22-Mar	22-Mar	4500	22	2.30	53	122.11
Bottom				22	1.67	83	140.00
Stewart Inlt	22-Mar	26-Mar	2500	30	2.67	41	83.03
Bottom				30	0.81	39	24.28
Macrocystis			350	19	2.50		2.63
Stewart Inlt	22-Mar	26-Mar	3000	21	1.67	45	47.52
Bottom				21	1.02	70	45.62
Macrocystis			1400	17	3.25		7.85
Tankeeah River	22-Mar	24-Mar	600	19	2.64	64	18.69
Bottom				19	1.03	65	7.45
Dive Survey Area Total							3598.94
Statistical Area 08: Bella Coola							
Dive Survey							
Illahie Inlt	3-Apr	3-Apr	1400	22	1.46	38	16.81
Bottom				22	0.78	69	16.33
Illahie Inlt	3-Apr	3-Apr	300	13	2.94	44	5.07
Bottom				13	1.96	86	6.55
Kwakume Inlt	22-Mar	28-Mar	5250	57	1.77	51	272.83
Bottom				57	1.69	45	229.00
Kwakume Inlt	22-Mar	28-Mar	1	37	4.11	34	0.05
Bottom				37	3.97	36	0.05
Kwakume Pt	22-Mar	28-Mar	6950	27	2.82	46	240.40
Bottom				27	1.67	74	227.50
Whidbey Pt	22-Mar	28-Mar	3300	16	1.41	37	27.73
Bottom				16	0.89	59	27.84
Dive Survey Area Total							1070.16
Statistical Area 09: Rivers Inlet							
Dive Survey							
Goose Bay	7-Apr	7-Apr	2500	105	0.93	35	85.99
Bottom				105	1.25	5	15.60
Goose Bay	7-Apr	7-Apr	500	14	2.25	38	5.91
Bottom				14	0.01	50	0.03

Table 5. Continued

Spawning Ground	Spawn Date Start	End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Dive Survey Area Total							107.53
Statistical Area 10: Smith Inlet							
Dive Survey							
Birkby Pt	3-Apr	5-Apr	2350	16	1.21	65	30.11
Bottom				16	0.73	69	19.43
Macrocystis			700	10	2.00		3.22
Dry Cr	4-Apr	4-Apr	950	109	1.61	55	90.70
Bottom				109	0.50	9	4.76
Takush Hrbr	3-Apr	7-Apr	3150	41	1.26	36	57.94
Bottom				41	0.93	66	79.02
Macrocystis			1050	11	1.75		10.54
Dive Survey Area Total							295.71
Statistical Area 12: Alert Bay							
Surface Survey							
Ahnuhati Pt	2-Mar	2-Mar	70	8	1.80	100	1.01
Ahnuhati Pt	2-Mar	2-Mar	130	3	1.00	100	0.39
Ahnuhati Pt	2-Mar	2-Mar	85	30	1.00	100	2.55
Ahnuhati Pt	2-Mar	2-Mar	68	2	0.50	100	0.07
Ahnuhati Pt	2-Mar	2-Mar	45	1	0.25	100	0.01
Ahnuhati Pt	2-Mar	2-Mar	180	1	0.25	100	0.05
Axe Pt	2-Mar	2-Mar	46	2	1.80	100	0.17
Axe Pt	2-Mar	2-Mar	23	2	1.95	100	0.09
Axe Pt	3-Apr	5-Apr	333	1	0.29	100	0.10
Axe Pt	3-Apr	5-Apr	47	2	0.29	100	0.03
Axe Pt	3-Apr	5-Apr	273	2	0.55	100	0.30
Axe Pt	3-Apr	5-Apr	76	10	2.43	100	1.84
Axe Pt	3-Apr	5-Apr	121	3	0.50	100	0.18
Axe Pt	3-Apr	5-Apr	45	5	1.00	100	0.23
Daphne Pt	3-Apr	6-Apr	50	5	0.53	100	0.13
Daphne Pt	3-Apr	6-Apr	30	3	0.25	100	0.02
Daphne Pt	3-Apr	6-Apr	80	25	0.96	100	1.93
Deer Bay	2-Mar	2-Mar	12	1	0.25	100	0.00
Deer Bay	2-Mar	2-Mar	335	2	1.33	100	0.89
Deer Bay	2-Mar	2-Mar	400	1	1.00	100	0.40
Deer Bay	2-Mar	2-Mar	76	11	2.20	100	1.84
Deer Bay	2-Mar	2-Mar	273	4	0.60	100	0.66
Franklin Flats +	23-Mar	25-Mar	125	1	0.25	100	0.03
Franklin Flats +	23-Mar	25-Mar	50	1	0.25	100	0.01
Franklin Flats +	23-Mar	25-Mar	160	3	0.53	100	0.25
Franklin Flats +	23-Mar	25-Mar	200	10	0.49	100	0.98
Franklin Flats +	23-Mar	25-Mar	50	50	0.53	100	1.31
Franklin Flats +	23-Mar	25-Mar	105	25	1.00	100	2.63
Kingcome Inlt	3-Apr	4-Apr	2749	2	0.55	100	3.02

Table 5. Continued

Spawning Ground	Spawn Date Start	Spawn Date End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Kingcome Inlt	3-Apr	4-Apr	965	2	1.00	100	1.93
Kingcome Inlt	3-Apr	4-Apr	799	2	2.00	100	3.20
Kingcome Inlt	3-Apr	4-Apr	460	3	1.00	100	1.38
Kingcome Inlt	3-Apr	4-Apr	187	3	2.45	100	1.37
Kingcome Inlt	3-Apr	4-Apr	90	20	2.80	100	5.04
Kingcome Inlt	3-Apr	4-Apr	1600	3	0.55	100	2.64
Kingcome Inlt	3-Apr	4-Apr	1930	2	0.55	100	2.12
Kingcome Inlt	3-Apr	4-Apr	78	3	1.40	100	0.33
Kingcome Inlt	3-Apr	4-Apr	125	4	1.90	100	0.95
Kingcome Inlt	3-Apr	4-Apr	60	4	3.43	100	0.82
Kingcome Inlt	3-Apr	4-Apr	30	4	1.90	100	0.23
Rubble Pt	2-Mar	2-Mar	235	2	1.00	100	0.47
Rubble Pt	2-Mar	2-Mar	160	1	0.25	100	0.04
Rubble Pt	2-Mar	2-Mar	50	1	0.25	100	0.01
Rubble Pt	2-Mar	2-Mar	300	6	3.00	100	5.40
Rubble Pt	2-Mar	2-Mar	878	2	1.48	100	2.59
Rubble Pt	2-Mar	2-Mar	200	2	1.48	100	0.59
Rubble Pt	2-Mar	2-Mar	141	5	1.45	100	1.02
Rubble Pt	2-Mar	2-Mar	300	3	1.00	100	0.90
Sargeaunt Pass	25-Mar	25-Mar	60	3	1.90	100	0.34
Sargeaunt Pass	25-Mar	25-Mar	60	10	1.00	100	0.60
Thompson Snd	3-Apr	4-Apr	30	5	1.43	100	0.21
Thompson Snd	3-Apr	4-Apr	106	3	2.30	100	0.73
Thompson Snd	3-Apr	4-Apr	83	3	1.45	100	0.36
Thompson Snd	3-Apr	4-Apr	121	2	1.48	100	0.36
Thompson Snd	3-Apr	4-Apr	114	30	2.00	100	6.84
Wahkash Cr	2-Mar	2-Mar	20	10	1.90	100	0.38
Wahkash Cr	2-Mar	2-Mar	30	1	0.50	100	0.02
Wahkash Cr	2-Mar	2-Mar	43	3	1.45	100	0.19
Wahkash Cr	2-Mar	2-Mar	25	2	0.55	100	0.03
Wahshihlas Bay	2-Mar	2-Mar	290	1	0.50	100	0.15
Wahshihlas Bay	2-Mar	2-Mar	640	1	0.60	100	0.38
Wahshihlas Bay	2-Mar	2-Mar	300	3	1.45	100	1.31
Wahshihlas Bay	2-Mar	2-Mar	601	2	1.48	100	1.77
Wahshihlas Bay	2-Mar	2-Mar	300	4	1.95	100	2.34
Wahshihlas Bay	2-Mar	2-Mar	1325	3	1.45	100	5.76
Wahshihlas Bay	2-Mar	2-Mar	325	2	1.00	100	0.65
Wahshihlas Bay	2-Mar	2-Mar	170	3	1.90	100	0.97
Wahshihlas Bay	2-Mar	2-Mar	225	2	1.00	100	0.45
Wahshihlas Bay	2-Mar	2-Mar	12	3	1.00	100	0.04
Wahshihlas Bay	2-Mar	2-Mar	650	2	1.45	100	1.89
Wahshihlas Bay	2-Mar	2-Mar	60	5	2.80	100	0.84
Wahshihlas Bay	2-Mar	2-Mar	50	2	0.53	100	0.05
Wahshihlas Bay	25-Feb	25-Feb	75	1	0.25	100	0.02
Wahshihlas Bay	25-Feb	25-Feb	21	2	1.00	100	0.04
Wahshihlas Bay	25-Feb	25-Feb	20	1	0.25	100	0.01

Table 5. Continued

Spawning Ground	Spawn Date Start	End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Wahshihlas Bay	25-Feb	25-Feb	35	2	0.53	100	0.04
Wahshihlas Bay	25-Feb	25-Feb	20	1	0.25	100	0.01
Wahshihlas Bay	2-Mar	2-Mar	76	6	1.45	100	0.66
Wahshihlas Bay	2-Mar	2-Mar	256	2	1.00	100	0.51
Wahshihlas Bay	2-Mar	2-Mar	137	1	1.45	100	0.20
Wahshihlas Bay	2-Mar	2-Mar	30	5	2.45	100	0.37
Wakeman Snd	3-Apr	4-Apr	26	15	0.53	100	0.20
Wakeman Snd	3-Apr	4-Apr	45	21	1.48	100	1.39
Wakeman Snd	3-Apr	4-Apr	3082	5	2.40	100	36.98
Wakeman Snd	3-Apr	4-Apr	115	8	3.53	100	3.24
Wakeman Snd	3-Apr	4-Apr	1606	3	1.95	100	9.40
Wakeman Snd	3-Apr	4-Apr	131	10	2.48	100	3.24
Wakeman Snd	3-Apr	4-Apr	592	4	1.48	100	3.49
Wakeman Snd	3-Apr	4-Apr	175	3	0.53	100	0.28
Wakeman Snd	4-Mar	5-Mar	117	31	1.00	100	3.63
Wakeman Snd	4-Mar	5-Mar	431	21	1.40	100	12.67
Wakeman Snd	4-Mar	5-Mar	46	10	0.48	100	0.22
Wakeman Snd	4-Mar	5-Mar	64	18	3.13	100	3.60
Wakeman Snd	4-Mar	5-Mar	40	4	2.40	100	0.38
Wakeman Snd	4-Mar	5-Mar	183	5	2.35	100	2.15
Wakeman Snd	4-Mar	5-Mar	46	15	2.80	100	1.93
Wakeman Snd	4-Mar	5-Mar	117	3	1.45	100	0.51
Wakeman Snd	4-Mar	5-Mar	230	18	1.40	100	5.80
Wakeman Snd	4-Mar	5-Mar	245	5	1.48	100	1.81
Wakeman Snd	4-Mar	5-Mar	220	4	1.35	100	1.19
Wakeman Snd	4-Mar	5-Mar	159	3	1.00	100	0.48
Wakeman Snd	4-Mar	5-Mar	31	4	1.45	100	0.18
Surface Survey Area Total							173.40
Dive Survey							
Beaver Hrbr (Ft Rupert)	23-Mar	23-Mar	2170	46	0.13	42	5.53
Dive Survey Area Total							5.53
Statistical Area 13: Quathiaski							
Surface Survey							
Bute Inlt Hd	2-Mar	7-Mar	150	2	1.00	100	0.30
Bute Inlt Hd	2-Mar	7-Mar	198	2	1.00	100	0.40
Frazer Bay	2-Mar	7-Mar	10	4	2.00	100	0.08
Frazer Bay	2-Mar	7-Mar	10	4	2.00	100	0.08
Frazer Bay	2-Mar	7-Mar	61	4	3.00	100	0.73
Frazer Bay	2-Mar	7-Mar	14	4	5.00	100	0.28
Frazer Bay	2-Mar	7-Mar	5	6	2.00	100	0.06
Hamilton Pt	2-Mar	7-Mar	650	2	1.00	100	1.30

Table 5. Continued

Spawning Ground	Spawn Date Start	Spawn Date End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Hamilton Pt	2-Mar	7-Mar	370	4	1.00	100	1.48
Hamilton Pt	2-Mar	7-Mar	300	4	1.00	100	1.20
Hamilton Pt	2-Mar	7-Mar	80	4	1.00	100	0.32
Hamilton Pt	2-Mar	7-Mar	100	2	1.00	100	0.20
Hamilton Pt	2-Mar	7-Mar	116	2	1.00	100	0.23
McBride Bay	2-Mar	7-Mar	220	1	0.60	100	0.13
McBride Bay	2-Mar	7-Mar	52	4	0.60	100	0.13
McBride Bay	2-Mar	7-Mar	67	4	2.80	100	0.75
McBride Bay	2-Mar	7-Mar	50	4	4.60	100	0.92
McBride Bay	2-Mar	7-Mar	90	6	3.70	100	2.00
McBride Bay	2-Mar	7-Mar	38	2	3.70	100	0.28
McBride Bay	2-Mar	7-Mar	120	4	1.80	100	0.86
McBride Bay	2-Mar	7-Mar	150	4	0.90	100	0.54
McBride Bay	2-Mar	7-Mar	67	2	0.90	100	0.12
McBride Bay	2-Mar	7-Mar	21	8	0.90	100	0.15
McBride Bay	2-Mar	7-Mar	100	4	1.00	100	0.40
McBride Bay	2-Mar	7-Mar	87	6	1.00	100	0.52
McBride Bay	2-Mar	7-Mar	130	4	1.00	100	0.52
McBride Bay	2-Mar	7-Mar	137	4	1.00	100	0.55
McBride Bay	2-Mar	7-Mar	102	2	3.00	100	0.61
McBride Bay	2-Mar	7-Mar	91	3	1.00	100	0.27
McBride Bay	2-Mar	7-Mar	40	2	1.00	100	0.08
McBride Bay	2-Mar	7-Mar	163	2	1.80	100	0.59
McBride Bay	2-Mar	7-Mar	60	2	1.00	100	0.12
McBride Bay	2-Mar	7-Mar	29	6	1.00	100	0.17
McBride Bay	2-Mar	7-Mar	42	2	1.00	100	0.08
McBride Bay	2-Mar	7-Mar	66	2	2.60	100	0.34
McBride Bay	2-Mar	7-Mar	80	4	1.00	100	0.32
McBride Bay	2-Mar	7-Mar	158	6	1.00	100	0.95
McBride Bay	2-Mar	7-Mar	68	6	1.00	100	0.41
McBride Bay	2-Mar	7-Mar	96	4	1.00	100	0.38
McBride Bay	2-Mar	7-Mar	128	2	1.00	100	0.26
McBride Bay	2-Mar	7-Mar	96	4	1.00	100	0.38
Waddington Hrbr	2-Mar	7-Mar	620	2	1.00	100	1.24
Waddington Hrbr	2-Mar	7-Mar	90	2	1.00	100	0.18
Waddington Hrbr	2-Mar	7-Mar	80	2	1.00	100	0.16
Waddington Hrbr	2-Mar	7-Mar	31	2	1.00	100	0.06
Waddington Hrbr	2-Mar	7-Mar	75	2	1.00	100	0.15
Waddington Hrbr	2-Mar	7-Mar	22	2	1.00	100	0.04
Waddington Hrbr	2-Mar	7-Mar	51	2	1.00	100	0.10
Waddington Hrbr	2-Mar	7-Mar	70	2	1.00	100	0.14
Waddington Hrbr	2-Mar	7-Mar	80	3	1.00	100	0.24
Waddington Hrbr	2-Mar	7-Mar	90	3	1.00	100	0.27
Waddington Hrbr	2-Mar	7-Mar	77	3	1.00	100	0.23
Waddington Hrbr	2-Mar	7-Mar	55	4	1.00	100	0.22
Waddington Hrbr	2-Mar	7-Mar	60	2	1.00	100	0.12

Table 5. Continued

Spawning Ground	Spawn Date Start	Spawn Date End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Waddington Hrbr	2-Mar	7-Mar	150	4	2.00	100	1.20
Waddington Hrbr	2-Mar	7-Mar	60	2	3.00	100	0.36
Waddington Hrbr	2-Mar	7-Mar	35	10	3.00	100	1.05
Waddington Hrbr	2-Mar	7-Mar	77	4	3.00	100	0.92
Waddington Hrbr	2-Mar	7-Mar	42	4	2.00	100	0.34
Waddington Hrbr	2-Mar	7-Mar	10	4	1.00	100	0.04
Waddington Hrbr	2-Mar	7-Mar	42	4	1.00	100	0.17
Waddington Hrbr	2-Mar	7-Mar	56	12	0.60	100	0.40
Waddington Hrbr	2-Mar	7-Mar	120	4	3.00	100	1.44
Waddington Hrbr	2-Mar	7-Mar	118	3	2.00	100	0.71
Waddington Hrbr	2-Mar	7-Mar	77	2	3.00	100	0.46
Waddington Hrbr	2-Mar	7-Mar	120	2	2.00	100	0.48
Waddington Hrbr	2-Mar	7-Mar	87	2	1.00	100	0.17
Waddington Hrbr	2-Mar	7-Mar	83	4	3.00	100	1.00
Waddington Hrbr	2-Mar	7-Mar	120	3	4.00	100	1.44
Waddington Hrbr	2-Mar	7-Mar	140	4	2.00	100	1.12
Waddington Hrbr	2-Mar	7-Mar	20	6	2.00	100	0.24
Waddington Hrbr	2-Mar	7-Mar	60	6	2.00	100	0.72
Waddington Hrbr	2-Mar	7-Mar	40	6	2.00	100	0.48
Waddington Hrbr	2-Mar	7-Mar	104	2	2.00	100	0.42
Waddington Hrbr	2-Mar	7-Mar	244	2	1.00	100	0.49
Waddington Hrbr	2-Mar	7-Mar	450	4	1.00	100	1.80
Waddington Hrbr	2-Mar	7-Mar	62	2	2.00	100	0.25
Waddington Hrbr	2-Mar	7-Mar	55	2	1.00	100	0.11
Waddington Hrbr	2-Mar	7-Mar	250	2	1.00	100	0.50
Ward Pt	2-Mar	7-Mar	150	2	2.00	100	0.60
Surface Survey Area Total							39.57
Statistical Area 14: Comox							
Dive Survey							
Baynes Snd	5-Mar	7-Mar	3500	162	1.86	36	382.01
Bottom				162	1.13	24	150.02
Big Qualicum Rvr	7-Mar	7-Mar	7000	246	1.30	30	673.62
Bottom				246	0.76	12	159.75
Boat Cv	23-Mar	23-Mar	6700	31	1.29	46	124.06
Bottom				31	0.94	29	57.71
Bowser	4-Mar	7-Mar	4900	205	3.57	38	1377.02
Bottom				205	1.55	25	393.93
Boyle Pt	6-Mar	8-Mar	3900	75	1.68	24	115.97
Bottom				75	1.30	39	147.41
Cape Lazo	5-Mar	8-Mar	3100	651	2.08	35	1453.67
Bottom				651	1.04	32	676.63
Chrome Is	7-Mar	7-Mar	700	32	1.85	58	23.70
Bottom				32	1.08	45	10.64
Collishaw Pt	6-Mar	11-Mar	6000	172	1.22	43	542.97

Table 5. Continued

Spawning Ground	Spawn Date Start	Spawn Date End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Bottom				172	0.83	19	158.73
Columbia Beach	12-Mar	12-Mar	4200	283	1.74	31	645.95
Bottom				283	1.06	3	39.23
Comox Bar	7-Mar	7-Mar	1000	740	0.66	60	289.98
Bottom				740	0.79	16	92.76
Denman Is W	7-Mar	7-Mar	5200	10	2.12	61	67.00
Bottom				10	0.70	2	0.62
Englishman Rvr	12-Mar	13-Mar	3200	239	0.94	31	224.88
Bottom				239	1.50	1	7.64
Fillongley Park	4-Mar	8-Mar	3500	332	1.02	35	416.68
Bottom				332	0.37	6	27.11
French Cr	12-Mar	13-Mar	3500	141	0.99	31	149.34
Bottom				141	0.50	2	5.38
Gartley Pt	4-Mar	7-Mar	2800	316	2.22	27	528.00
Bottom				316	0.64	39	219.87
Gravelly Bay	7-Mar	8-Mar	2450	70	1.41	37	89.82
Bottom				70	1.83	3	10.04
Henry Bay	6-Mar	7-Mar	5600	47	3.63	40	387.88
Bottom				47	1.70	19	87.11
Kitty Coleman Beach	6-Mar	7-Mar	8400	278	1.16	30	818.52
Bottom				278	0.87	34	683.72
Komas Bluff	6-Mar	8-Mar	7350	443	1.48	26	1262.73
Bottom				443	0.90	11	334.00
Kye Bay	5-Mar	8-Mar	4300	573	1.56	34	1309.97
Bottom				573	0.66	30	488.98
Little Qualicum Rvr	7-Mar	7-Mar	2950	98	0.65	45	83.88
Bottom				98	0.75	10	20.60
Little Rvr	6-Mar	8-Mar	4200	218	0.98	22	200.57
Bottom				218	0.54	29	142.55
Mapleguard Pt	4-Mar	7-Mar	4200	298	3.38	40	1693.93
Bottom				298	1.60	14	271.21
Metcalf Bay	6-Mar	7-Mar	1500	24	1.77	36	22.75
Parksville Bay	12-Mar	12-Mar	1750	218	1.10	40	168.93
Bottom				218	0.75	3	8.39
Qualicum Bay	6-Mar	6-Mar	3150	266	3.45	20	566.59
Bottom				266	1.13	15	142.85
Qualicum Beach	8-Mar	8-Mar	5600	168	0.94	30	266.66
Bottom				168	0.01	3	0.26
Rathtrevor Beach	12-Mar	13-Mar	700	181	0.09	58	6.63
Repulse Pt	6-Mar	7-Mar	3850	120	3.21	49	724.12
Bottom				120	1.15	20	107.44
Seal Islets	5-Mar	6-Mar	3050	506	3.48	33	1750.08
Bottom				506	1.22	21	391.98
Shingle Spit	6-Mar	8-Mar	2800	37	1.12	33	37.75
Bottom				37	0.67	4	2.53
Tralee Pt	7-Mar	8-Mar	3800	93	1.27	39	177.52

Table 5. Continued

Spawning Ground	Spawn Date Start	End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Bottom				93	0.91	23	74.82
Whalebone Pt	7-Mar	8-Mar	4850	95	1.51	32	225.63
Bottom				95	1.18	5	29.60
Whaling Station Bay	8-Mar	8-Mar	2200	56	0.66	33	26.38
Bottom				56	0.34	18	7.47
Willemar Bluff	5-Mar	7-Mar	3550	320	1.59	29	525.55
Bottom				320	0.87	36	360.36
Dive Survey Area Total							22672.05
Statistical Area 16: Pender Harbour							
Dive Survey							
Bargain Bay	23-Mar	23-Mar	7200	39	1.95	53	290.44
Bottom				39	1.70	37	176.60
Gillies Bay	23-Mar	23-Mar	2400	54	0.30	31	11.98
Gillies Bay	23-Mar	23-Mar	4000	88	0.92	44	141.84
Bottom				88	0.46	25	41.22
Dive Survey Area Total							662.08
Statistical Area 17: Nanaimo							
Dive Survey							
Cedar Ramp +	23-Mar	24-Mar	700	109	2.29	48	84.81
Bottom				109	0.50	8	2.93
De Courcy Is	23-Mar	30-Mar	4000	38	1.98	25	76.71
Bottom				38	1.98	18	54.40
Dodd Nrws S	23-Mar	24-Mar	800	66	2.84	36	53.68
Bottom				66	0.83	11	4.68
Gabriola Is S	13-Mar	13-Mar	2600	70	2.07	34	128.26
Bottom				70	1.94	3	11.27
Mudge Is	31-Mar	1-Apr	3950	36	2.36	34	112.47
Bottom				36	1.20	6	10.66
Mudge Is	31-Mar	1-Apr	2300	26	1.58	44	41.51
Bottom				26	1.04	28	17.05
Dive Survey Area Total							598.45
Statistical Area 18: Cowichan							
Dive Survey							
Moses Pt	24-Mar	25-Mar	450	8	1.86	40	2.67
Dive Survey Area Total							2.67
Statistical Area 19: Saanich Peninsula							

Table 5. Continued

Spawning Ground	Spawn Date Start	End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Dive Survey							
Coles Bay	24-Mar	25-Mar	2650	19	2.85	47	65.50
Bottom				19	1.08	37	19.81
Deep Cv	24-Mar	25-Mar	2450	31	2.96	35	77.87
Bottom				31	1.63	12	14.86
Patricia Bay	24-Mar	26-Mar	2750	78	2.51	46	244.57
Bottom				78	0.93	12	22.97
Patricia Bay	24-Mar	26-Mar	500	16	1.92	15	2.31
Bottom				16	1.00	2	0.17
Dive Survey Area Total							448.05
Statistical Area 23: Barkley Sound							
Dive Survey							
Forbes Is	5-Mar	6-Mar	1700	92	1.54	21	49.48
Bottom				92	0.78	35	42.84
Macoah Pass	5-Mar	6-Mar	1800	95	0.90	55	84.90
Bottom				95	0.48	25	20.31
Two Rivers +	5-Mar	6-Mar	800	563	0.64	31	88.24
Bottom				563	0.20	52	46.82
Vernon Bay	11-Mar	12-Mar	720	24	3.47	23	13.45
Bottom				24	2.10	58	20.60
Vernon Bay	21-Mar	21-Mar	2200	16	2.03	28	20.11
Bottom				16	1.60	41	23.39
Dive Survey Area Total							410.14
Statistical Area 24: Clayoquot Sound							
Dive Survey							
Holmes Inlt	14-Mar	15-Mar	2030	29	1.58	42	39.41
Bottom				29	1.21	62	44.74
Holmes Inlt	14-Mar	15-Mar	400	27	0.88	61	5.82
Bottom				27	0.26	94	2.61
Holmes Inlt	14-Mar	15-Mar	1500	12	2.12	31	11.92
Bottom				12	0.88	58	9.29
Holmes Inlt	14-Mar	15-Mar	1400	21	1.93	32	17.69
Bottom				21	1.08	38	11.86
Holmes Inlt	14-Mar	15-Mar	1600	44	2.59	42	75.77
Bottom				44	2.04	48	68.14
Hot Springs Cv	14-Mar	15-Mar	380	18	0.38	80	2.07
McKay (Cone) Is	20-Mar	21-Mar	2200	37	1.34	32	33.93
Bottom				37	1.29	43	44.50
Macrocystis				50	2.00		

Table 5. Continued

Spawning Ground	Spawn Date Start	End	Length (m)	Width (m)	Layers	Cover (%)	S.A.I
Ross Pass	20-Mar	21-Mar	1850	53	1.33	21	28.19
Bottom				53	1.17	34	39.07
Young Bay	13-Mar	15-Mar	2750	34	1.63	25	38.14
Bottom				34	1.31	47	57.17
Macrocystis			300	15	2.75		1.36
Dive Survey Area Total							531.68
Statistical Area 25: Nootka Sound							
Dive Survey							
Garden Pt	8-Mar	11-Mar	2000	139	1.95	44	239.01
Bottom				139	1.31	26	94.28
Inner Nuchatlitz	8-Mar	11-Mar	2000	252	1.09	46	254.53
Bottom				252	0.01	4	0.18
Owossitsa Cr	8-Mar	11-Mar	4900	57	3.43	37	349.94
Bottom				57	1.81	46	231.79
Rosa Hrbr	8-Mar	11-Mar	2170	89	2.63	42	212.28
Bottom				89	0.80	37	57.33
Rosa Is	8-Mar	11-Mar	1100	141	4.14	41	261.57
Bottom				141	3.25	18	91.87
Dive Survey Area Total							1792.77
Statistical Area 26: Kyuquot Sound							
Dive Survey							
Clanninick Cv	8-Mar	8-Mar	350	175	0.50	43	13.38
Bottom				175	0.01	17	0.10
McLean Is	8-Mar	8-Mar	700	49	0.83	36	10.27
Bottom				49	0.84	19	5.57
Dive Survey Area Total							29.32
Statistical Area 27: Quatsino Sound							
Dive Survey							
Forward Inlt	21-Mar	24-Mar	700	26	0.71	58	7.37
Bottom				26	0.01	8	0.01
Moores Is	21-Mar	24-Mar	1100	31	0.54	51	9.30
Bottom				31	0.17	5	0.29
Quashtin Cr	21-Mar	24-Mar	750	25	0.25	74	3.47
Quashtin Cr	21-Mar	24-Mar	1400	12	0.76	49	6.05
Bottom				12	0.29	26	1.25
Dive Survey Area Total							27.75

Table 6. 2001 SOK Licences and landed product weight (lbs.) by statistical area and location.

Geographic Area and Statistical Area	Harvest Location	No of Licenses*	Spawn-On-Kelp Quota (lbs)	Harvest (lbs)
Queen Charlotte Islands				
Area 2E	Haswell Bay			28,046
	Hutton Inlet			95,305
	Jedway Bay			1,225
	Selwyn Inlet			36,106
Area Sub-Total		**10(2)**	**155,823**	**160,682**
Prince Rupert				
Area 3 / 4	Hunts Inlet	8	131,735	21,950
	Island Point			14,269
	Tugwell			20,932
	Venn Pass			59,761
Area 5	Gurd Island	3	45,447	17,130
	Kitkatla			21,220
Area Sub-Total		**11**	**177,182**	**155,262**
Central Coast				
Area 7/8	East Higgins Pass	5	79,606	24,335
	Powell Anchorage			22,268
	Illahie			21,746
Area 7/8†	Powell Anchorage/Illahie ♦	9	239,565	249,428
Area 10/12	Takush Harbour/ Daphne Point	4	65,835	65,798
Area Sub-Total		**18**	**385.006**	**383.575**
WCVI				
Area 23/24/25	Sydney Inlet	4(1)	64,812	20,019
	Flynn Cove			21,188
	Rosa Harbour			23,893
Area 27	Winter Harbour	3	47,558	38,830
Area Sub-Total		**7**	**112,370**	**103,930**
Coastwide Total		**46**	**830,381**	**803,449**

* The number enclosed in parentheses indicates the number of pools in the two areas under restricted management regimes (QCI & WCVI)

† Quota and catch reflect the increased allocation to the Heiltsuk Tribal Council. Licenses were not issued for the additional production quota.

♦ Open lines were also strung in Mathieson Channel, Reid Passage, Kildidt Sound, Boddy Passage, Joassa Channel, Thompson Bay, and Stewart Inlet,

Table 7. Catch (tons) for food and bait, ZX and ZY, charity, and aquarium use by statistical area

	Area 4	Area 7	Area 12	Area 13	Area 14	Area 16	Area 17	Area 18	Area 19	Area 20	Area 29	Total Catch	Allocated
St. of Georgia food & bait lottery							666.87					666.87	600
Johnstone St. food & bait lottery							255					255.00	300
Fjord ZY license							199.75					199.75	200
Walcan ZY license				38	247	15						300	300
Charity							90					90.00	150
Aquarium							57.64					57.64	110
ZX Personal Use Bait	0.75		11.7	1.06	0.06			0.3	0.34	.08		14.29	100
ZY Other Use Bait	0.75	0.45	1.87	10.58		9.11					0.15	22.91	199
TOTALS	**1.5**	**0.45**	**13.57**	**49.64**	**247.06**	**24.11**	**1269.26**	**0.3**	**0.34**	**0.08**	**0.15**	**1606.46**	**2084**

Table 8. 2001 Test fishing vessels by category.

# of Vessels	Category	Vessel Names	Region Worked	License Required	Payment Type
2	Management Platform	Snowdrift	Gulf	GN	Seine Fish
		Lasqueti Star	Central	GN	Seine Fish
1	Dive Spawn Survey*	Western Hunter	QCI	GN	Seine Fish
4	GN Test / Dive Spawn Survey	Royal Pride	Rupert	GN	Gillnet Fish
		Ocean Explorer	Central	GN	Gillnet Fish
		Endurance/Thunder 1	Gulf	GN	Gillnet Fish
		Elling K	Gulf	GN	Gillnet Fish
2	Surface Spawn Survey	Port Lincoln	Area 12	None	Cash
		Discovery Huntress	Area 13	None	Cash
3	Seine Test/ Dive Spawn Survey*	Christav	Central	SN	Seine Fish
		Viking Joy	WCVI	SN	Seine Fish
		Royal Viking	WCVI	SN	Seine Fish
9	Seine Test	Viking Pride	QCI	SN	Seine Fish
		Ocean Venture	Rupert	SN	Seine Fish
		Prodigy	Rupert	None	Seine Fish
		Kynoc	Central	SN	Seine Fish
		Ocean Royal	Gulf/Central	SN	Seine Fish
		Royal Mariner	Gulf	None	Seine Fish
		Angela Lynn	Gulf	SN	Seine Fish
		Argent No. 1	Gulf	SN	Seine Fish
		Ante B	WCVI	SN	Seine Fish
1	Coded Wire Tagging	My Lady Jane	Gulf / Rupert	None	Seine Fish

* All dive spawn survey vessels supplied 4 WCB approved "occupational scuba" certified divers.

Table 9. 2001 Test fishing vessels, dates of operations, and payment requirements (tons).

Area	Vessel	Captain	Dates	Duration (Days)	Rate	Payment Location	Total (Tons)
QCI	Viking Pride	E. Olsen	Mar 03 - Apr 06	35	3.41	Rupert	119.35
QCI	Western Hunter	M. S.Burton	Mar 15 - Apr 25**	25	3.15	Rupert	78.75
Rupert	Ocean Venture	G. Budden	Mar 10 - Apr 04	26	3.75	Rupert	97.50
Rupert~	Prodigy	P. Dupuis	Mar 16 to 29	18	1.8	Rupert	32.40
Rupert - GN^	Royal Pride	D. Malcolm	Mar 12 - Apr 19	39	2.65 gn 3.0 sn	Rupert	103.35
Central	Kynoc	B. Wilson	Mar 02 - Mar 31	30	3.8 w. obs 3.65 no o.	Central	113.10
Central^	Christav	G. Stava	Mar 09 - Apr 13	36	4.1	Central	147.60
Central / Gulf	Ocean Royal	F. Newman	Mar 10 - Mar 23	14	3.59	Central	50.26
Central	Lasqueti Star	L. Heskin	Mar 09 - Mar 29	21	2.85	Central	59.85
Central -GN^	Ocean Explorer	P. Mydske	Mar 15 - Apr 14	31	2.86 gn 3.5 sn	Central	94.87
Gulf	Argent No. 1	J. Malatestinic	Feb 22 - Mar 19	26	3.79	Gulf	98.54
Gulf	Angela Lynn	A. Tobin	Feb 24 - Mar 13 / 17 - 24	26	3.99	Gulf	103.74
Gulf / Central	Ocean Royal	F. Newman	Feb 24 - Mar 09	14	3.59	Gulf	50.26

Table 9. Continued

Area	Vessel	Captain	Dates	Duration	Rate	Payment Location	Total
Gulf~	Royal Mariner	M. Farac Jr.	Feb 26 - Mar 07	10	1.67	Gulf	16.70
Gulf	Snowdrift	R. Pierce	Feb 24 - Mar 15	21	2.7	Gulf	56.70
Gulf - GN^	Elling K	J. Malcolm	Mar 02 - Apr 02	32	2.24 gn 2.71 sn	Gulf	71.68
Gulf – GN^	Thunder 1	E. Hegglund	Mar 02 - Apr 04 / Apr 15	35	2.85 gn 3.85 sn	Gulf	100.59
Tagging~	My Lady Jane	R. Adams	Mar 03 - Mar 10 (8) Mar 15 - Apr 05 (22)	30	1.98	Gulf	59.40
Area 12*	Port Lincoln	G. Neidrauer		30 days			$625
Area 13*	Discovery	C. Bunn		30 days			$595
WCVI	Huntress Ante B	J. Boroevich	Feb 22 - Mar 19	26	3.99	Central	103.74
WCVI^	Viking Joy	D. Houston	Feb 26 - Apr 01	35	3.99 sn 3.5 gn	Gulf	137.25
WCVI^	Royal Viking	R. Holkestad	Feb 26 - Apr 01	35	4.39 sn 3.15 gn	Gulf	153.65

QCI = Queen Charlotte Islands; Rupert = Prince Rupert Division; Central = Central Coast; Gulf = Strait of Georgia; WCVI = West Coast Vancouver Island

~ no license
^ dive & test
* charter patrol and spawn survey

Table 10. 2001 Test fish payment requirements by region, and catch (tons) by location.

Region	Stat. Area	Herring Section	Location	Gear	Catch (tons)	Requirement (tons)
Prince Rupert District	5	52	Kitkatla Creek	seine	276.915	431.35
Central Coast	7	72	Berry Inlet; Foote Islets	seine	522.356	
	7	77	E. Higgins Pass	gillnet	60.923	
			CENTRAL COAST TOTAL		583.279	569.42
Strait of Georgia	14	142	Baynes Sound	seine	661.252	
	14	142	Lambert Channel; Repulse Pt.	gillnet	76.781	
	14	143	Qualicum Bay; French Ck; Columbia Beach	gillnet	110.246	
			STRAIT OF GEORGIA TOTAL		848.279	848.507
			TOTALS		1708.47	1849.28

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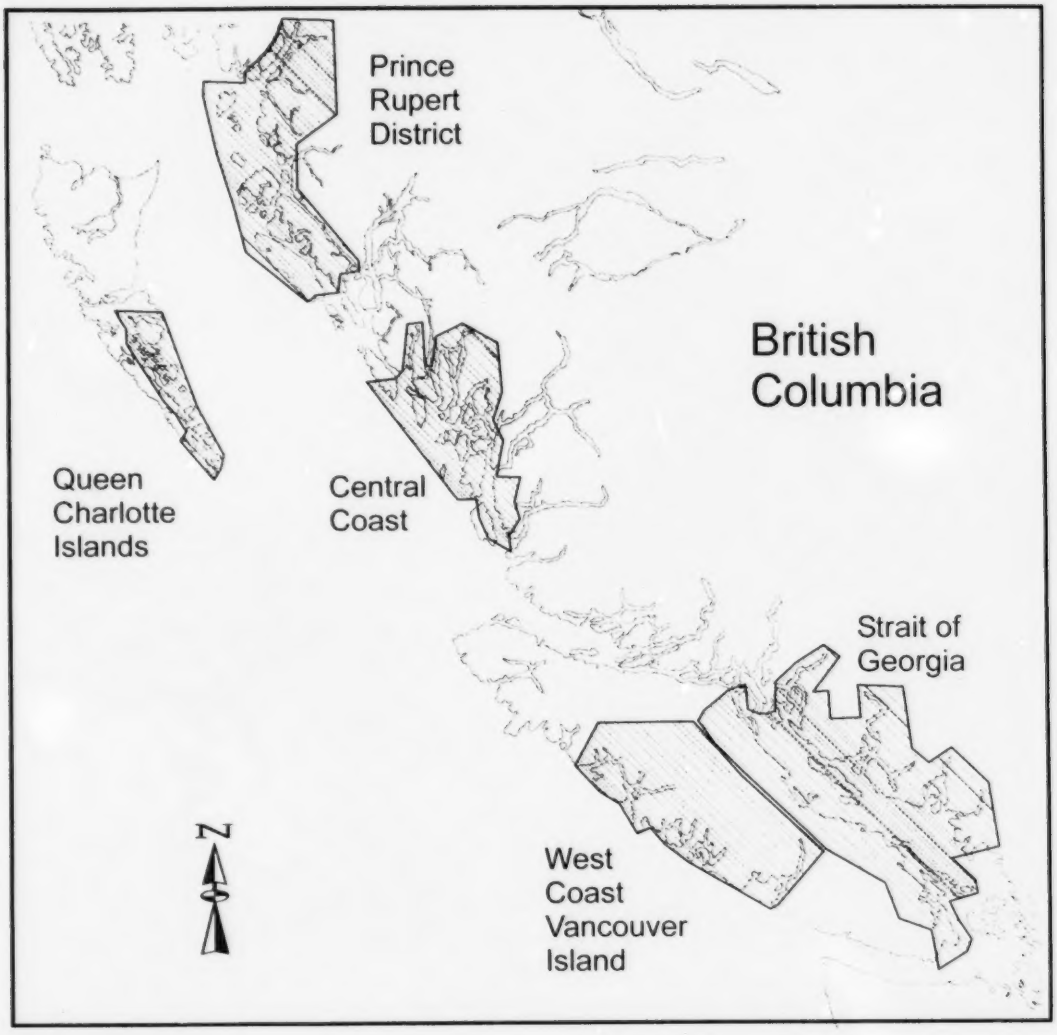

Figure 1. Herring stock assessment regions in British Columbia

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Figure 2A. Area 3 subareas open for 2001 Prince Rupert gillnet fishery: ptn 3-4.

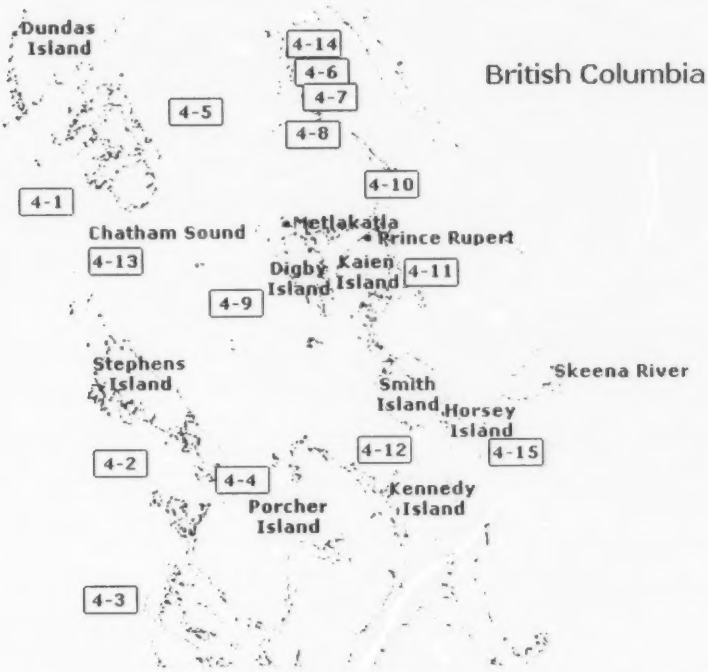

Figure 2B. Area 4 subareas open for 2001 Prince Rupert gillnet fishery: 4-5 to 4-9, 4-14 & ptn 4-10

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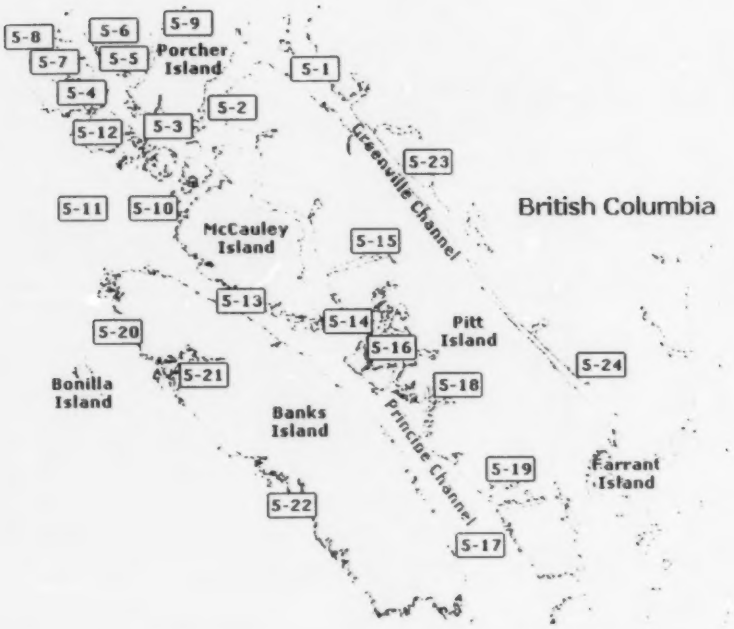

Figure 3. Subareas open for 2001 Kitkatla seine fishery: 5-4, 5-5 & ptn 5-6

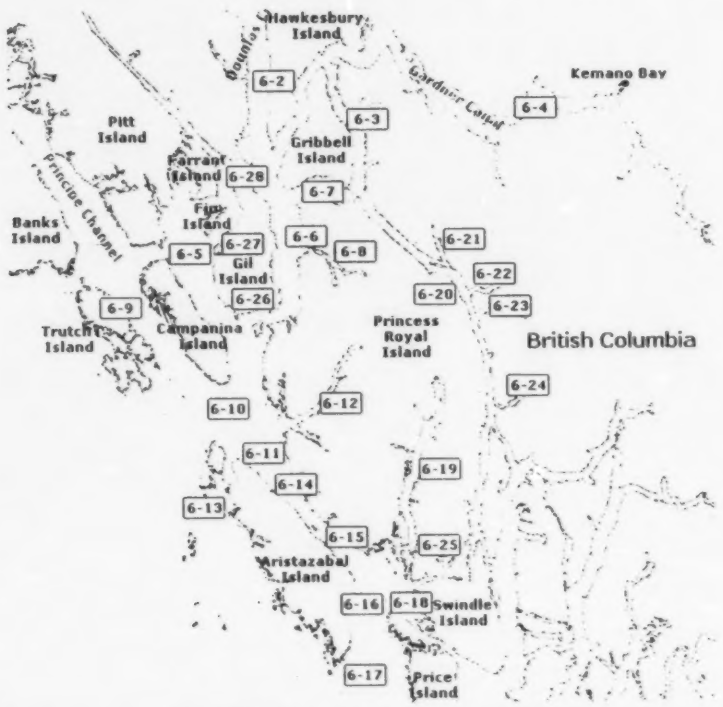

Figure 4. Subareas open for 2001 Central Coast gillnet fishery: ptn 6-16, 6-17, 7-3 (Figure 5).

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Figure 5. Subareas open for 2001 Central Coast seine fishery: 7-13; ptns 7-8, 7-12, 7-14.

Figure 6. Subareas open for 2001 St. of Georgia fisheries: Seine- 14-8, 14-11, 14-15; Gillnet 14-1 to 14-13, 14-15.